Neither playing nor gaming: Pottering in games

Neither Playing nor Gaming: Pottering in Games

Sus Lundgren
Department of Applied IT
Chalmers University of Technology
412 96 Göteborg, Sweden
+46 31 772 10 42
sus.lundgren@chalmers.se

Staffan Björk
Department of Applied IT
Göteborg University
412 96 Göteborg, Sweden
+46 31 772 1039
staffan.bjork@gu.se

ABSTRACT
Games can support many types of activities. This paper explores one of these, *pottering*, the placid but yet focused activity of arranging and rearranging things, taking care of them, "sorting them out". Five games which support pottering are analyzed using gameplay design patterns to show how game mechanics can give rise to the activity. As a result, six patterns especially linked to pottering are presented in greater detail. Moreover, the idea of viewing games as artifacts that can support several, sometimes overlapping, activities, is being explored and discussed.

Categories and Subject Descriptors
K.8.0 [**General**]: Games

General Terms
Design

Keywords
Pottering, Gameplay Design Patterns, Gameplay Design, Design

1. INTRODUCTION
Games are enjoyed for many reasons: some players like competition or the tempting challenge in analyzing and "beating" a game system, while others enjoy the social aspects of a game. Some enjoy seeing their own devious plans successfully realized, yet others play for the thrill of randomness. Some play games to fill gaps of time, e.g. during lunch or on a break, others set evenings aside for gaming. For others, the most important part of the game is not the game per se, but the activities that prelude it; learning rules or designing, assembling or decorating game parts.

However, hardly any game can satisfy all of these aspects and this explains why different players prefer different types of games, or choose different types of games depending of context. In short, the characteristics of the game define which activities it supports. This – the multitude of activities – may be one reason for the many definitions of games that have been provided over the years, see e.g. Abt [1], Callois [9], Crawford [11], Huizinga [20], Juul [21], Salen et al. [32], and Suits [33] . It is indeed notable that while some of these define a game as an artifact many actually define the activity of playing or gaming instead. While this shows the importance of the activities provided by game artifacts, the use of the word "game" will in this paper refer to a game in itself, rather than any activity related to playing it.

FDG '12, May 29-June 1, 2012 Raleigh, NC, USA.

In this paper, we explore the idea of games as artifacts able to support many different activities by looking at one in specific: *pottering* [34]. This activity is a relaxed way of performing some task for its own sake, but it differs from playing most games in that there is no focus upon winning or completing the game. How this activity can arise from game mechanics is described through use of gameplay design patterns [2]. After describing the characteristics of pottering and patterns respectively, we present five pottering intense-games, and the most important gameplay design patterns related to them. Based on this material, a discussion on the relation between pottering and other activities is presented. The paper ends with further discussion on how the approach of games as supporting multiple activities can be fruitful for the game research field as a whole.

2. BACKGROUND
Various game researchers have previously applied several different approaches to understanding the differences in what players prefer to do while playing. Many of these approaches introduce concepts and categorizations valuable for understanding pottering in games, and these are introduced here to provide a vocabulary for the continued exploration:

Bartle [6] identifies four **player types** in text-based multiplayer online games, which was later expanded to eight categories: *Friend*, *Griefer*, *Hacker*, *Networker*, *Opportunist*, *Planner*, *Politician,* and *Scientist* [5][1].

Focusing on different kinds of experiences rather than player categories, Hunicke et al. [19] instead introduce eight **types of fun** while describing the Mechanics-Dynamics-Aesthetics (MDA) model: *Sensation*, *Fantasy*, *Narrative*, *Challenge*, *Fellowship*, *Discovery*, *Expression,* and *Submission*.

Addressing game development professionals, Lazzaro (2010) outlined more than ten different emotions (e.g. *Amici*, *Schadenfreude*, and *Fiero*) divided into four **categories of fun**: *Hard*, *Easy*, *Serious* and *People*.

Based on empirical data collected from over 5000 gamers in graphical versions of massively multiplayer online games over 3 years, Yee [36] identified a five factor model of **user motivations** through exploratory factor analysis: *Achievement*, *Relationship*, *Immersion*, *Escapism* and *Manipulation*.

Several similarities can be noticed in these examples of research although they looked at different sets of games and presented ontologically different categories. Not too surprising, the importance of social interaction can be found in all (the fun of *Fellowship*, the *People* fun category, the *Relationship* and

[1] The apparent inconsistency of years in the references is due to the 2006 paper being based on an earlier paper.

Manipulation factor, and the player types *Friend*, *Griefer*, *Networker*, and *Politician*). Likewise, the overcoming of challenges is present (the *Hard fun* category, the *Achievement* and *Relationship* factors, the player types *Hacker*, *Politician*, and *Scientist*, and the funs of *Challenge* and even *Submission*).

Not looking at players or types of fun but rather at gameplay as an aesthetic experience, Lundgren et al. [26] introduced the concept of gameplay ideals to describe how games as artifacts can convey different types of intended gameplay and described seven specific ideals: *Light Games*, *Pottering*, *Emergence*, *Meditation*, *Player Adaptability*, *Reenactment*, *Camaraderie*, and *Meta-game*. Seen as a form of counterpart to the categories of Bartle and Yee, these can be combined to express succinctly what is required for finding a suitable game for a player: matching their player type, or motivation for playing, with games that have compatible gameplay ideals.

Starting from another viewpoint, the generic concept of *Flow* [12] describes one of the reasons – perhaps the most important one – why playing games are enjoyable. At the same time, it fails to describe what separates games from other artifacts that also provide flow, something which would require a more detailed description of the activities supported by games. Rather than trying to understand games by describing all these as one coherent activity ("playing"), which has been attempted before and easily bogs down in disputes over what should or should not be included or excluded, we believe that a more constructive way to understand the appeal of games is to look at more narrowly defined activities which are often supported by games, albeit not by all games; in this case pottering.

2.1 Pottering

In popular press, Hensher [17] describes *pottering* as arranging or re-arranging things (books in bookshelf, things in kitchen cupboards, etc), being an experience neither stressful nor boring but satisfying in a meditative way. Taylor et al. [34] described pottering in relation to computer application design, although not with a games focus, as "the kinds of things frittered between (usually in leisure time) with little or no purpose", and which are performed since "[a] delight is found in doing what appears to be nothing of consequence." Based on a mixture of interviews, video recordings, and ethnography-like methods, they identified and describe **five noteworthy aspects of the pottering activity**: *The Unplanned*, *Pottering-Time*, *Accountability*, *Satisfaction*, and *Emotional Flux*. These aspects relate quite well to the previously introduced concepts.

First, *The Unplanned* implies that pottering is something done without the aim of completing specific long-term goals, seemingly making it difficult to combine with experiencing any long *Narrative* or having *Relationship* as a motivation (making both the *Planner* and *Politician* role seem problematic). However, *The Unplanned* to some extent fosters *Discovery*. Second, *Accountability* – a somewhat misleading name since it refers to the absence of it: "when pottering, [people] clear particular times and spaces of accountability" – is quite similar to how Salen et al. [32] use the *Magic Circle* concept and Gee's principle [16] of *Psychosocial Moratorium*. It is also coupled to *Immersion* in that this too, is a way to escape accountability.

Third, *Satisfaction* may seem to overlap with the *Achievement* motivation, but the description by Taylor fits better with *Escapism* and the fun of *Expression* or *Submission*. Lastly, *Emotional Flux* points out that pottering is not about experiencing one emotional state but rather to move between them – somewhat like the work of both Hunicke and Lazzaro point to through their ranges of different types of fun.

In addition, parallels can be found between pottering and the concept of flow. Dedicated *Pottering-Time* and lack of *Accountability* give the same freedom in a pottering activity as flow, enabling people to having personal control of the activity and having the possibility to concentrate on the task at hand. The *Satisfaction* of pottering in "easy and mindless activities" is similar to the intrinsic reward and distorted sense of time often accompanying flow.

2.2 Gameplay Design Patterns

The five aspects of pottering are actually more related to the experiences and framings of the pottering *activity* than the actual concrete *actions*. Thus, if design choices related to gameplay can be traced to the experiences of pottering, it means that pottering can be supported by games through their gameplay rather than other features. To do this in detail, a way of describing design choices regarding gameplay is needed. While several frameworks or models exist for this (e.g. [37]), gameplay design patterns [2] had already been used to explore the experience of camaraderie [7] and therefore seems a feasible candidate. Gameplay design patterns are re-occurring design features in games and described both through how they affect gameplay (and indirectly other aspects of the game) and through what options and requirements they have to exist. Noteworthy is that the affects, options, and requirements are often described through other gameplay design patterns to create a web of relations.

3. EXPLORING POTTERING IN GAMES

Armed with the conceptual understanding of pottering and the tool of gameplay design patterns, the groundwork for exploring pottering as an activity within games exists. Given that similar work had already been conducted for another gameplay ideal, camaraderie, the same approach was applied.

The process consisted of three phases. In the first phase, suitable games were first identified and then a smaller group chosen. The selection was based firstly on the requirement of containing many of the aspects of pottering: *The Unplanned*, *Pottering-Time*, *Accountability*, *Satisfaction*, and *Emotional Flux*. Only games which the researchers had extensive personal experience of – those that they could be assumed to have "vulgar competence" [15] with – were considered; this to ensure that sufficient knowledge about their gameplay existed. Lastly, games were chosen with diversity in mind to cover several different genres.

That several games were chosen – rather than just one to be studied in more detail – is due to the fact that patterns are supposed to be re-occurring in several different game designs and this would be difficult to argue if only exploring one game. The games chosen were Zoo Tycoon [8], The Sims 3 [35], Minecraft [28], Europa Universalis 3 [29], and FarmVille [37].

The second and third phases were iterative. In the second phase, pottering games were described in terms of patterns. Existing pattern collections used as primary sources but new patterns were introduced when needed. In the third phase, pottering-related patterns were aligned to each other within the frame of the MDA model, creating tree-like structures of relations (see Figure 1). It was also in this phase that the newfound patterns were fully formed, and the most important aesthetical patterns were identified. The method was used since it opened up for finding

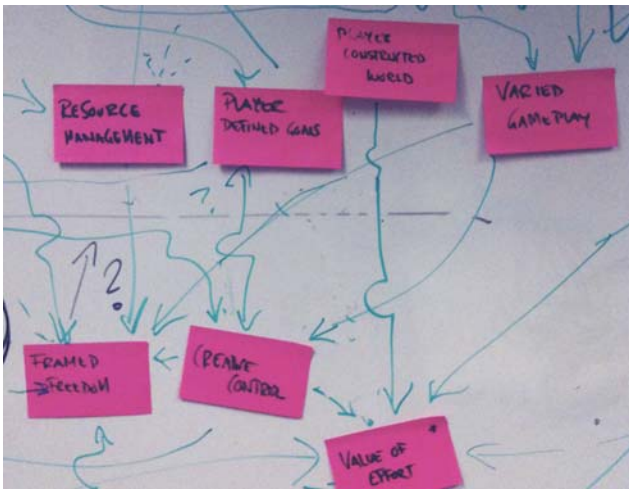

Figure 1: The most cluttered part of the pattern-web. Note all the arrows pointing from dynamic patterns RESOURCE MANAGEMENT and VARIED GAMEPLAY to the aesthetic patterns FRAMED FREEDOM and VALUE OF EFFORT.

new patterns relevant to pottering while at the same time helping in the comparison and analysis of pattern relations. Moreover, defining patterns in the third phase in relation to other patterns helped indicate which patterns were most important to pottering.

The researchers' knowledge of the five games was based on both gameplay time, ranging from 25 to over 200 hours for each game, and sampling of the online discourse on the games. It is worth noting that throughout the process focus was on patterns related to pottering, which means that other patterns in the games, not affecting pottering, have been left out of the text.

3.1 Case Studies

The following section describes the five games explored for gameplay mechanics that supported pottering activities. All games are rich in interaction possibilities, so the descriptions here only pertain to the focus of the study.

3.1.1 Case study: Zoo Tycoon

Players of Zoo Tycoon can choose various specific goals, but the common objective of the game is to run a zoo: setting up suitable animal exhibits (containing the correct terrain, vegetation, rocks, etc.) as well as facilities for visitors (food stands, toilets, etc). The existence of two different kinds of beings – animals and visitors – creates design challenges, especially since they in some cases have contradictory needs (e.g. visitors want to come close to animals whereas animals will get stressed by this). The game is divided in different scenarios that set objectives and constraints (e.g. to exhibit at least eight different species within 12 months on a certain budget, achieving certain satisfaction rates). Typically, not all resources are available at the beginning of a scenario; they are unlocked during game instances. Players can also choose to play freely in sandbox mode, thus setting up their own objectives.

3.1.2 Case study: The Sims 3

The *Sims 3* belongs to a series of games that have in popular press been described as a "virtual dollhouse" [25], in that the player designs the environment and life of their "dolls"– the so-called sims. There is no explicit goal in the game, other than those the player sets, e.g. that one's sims should travel the world, engage in a gay relationship, or get filthy rich, as studied by Peterson [31].

Figure 2: An exhibit in *Zoo Tycoon*; note the elevated lookouts and carefully designed exhibits whose look & feel is irrelevant for gameplay – one might just as well just place al trees in one corner, for instance.

This is enabled by providing one's sims with possessions (starting with a house and its furniture) see to that they develop chosen/suitable skills and abilities, and get them into relationships (by prompting interaction with others).

3.1.3 Case study: Minecraft

Minecraft is an open-ended game where players can explore and reshape large worlds consisting of square building blocks. There are different types of blocks (air, water, stone, ore etc) which can be combined into other materials or things like, fences, furnaces, stairs, doors, torches, pressure plates and so on. These can then be combined creating larger structures. For instance, players have constructed detailed models of the starship Enterprise NCC-1701-A from Star Trek[2], the World Trade Center[3], and a 16-bit Algorithm Logic Unit [18].

Figure 3: An example of the type of construction possible in Minecraft.

[2] *http://www.planetminecraft.com/project/uss-enterprise-ncc1701a-version-12/. Visited 2012-03-27.*

[3] *http://www.minecraftforum.net/topic/1066269-new-world-trade-center-project-download/page__hl__wtc__fromsearch__1. Visited 2012-03-27.*

Figure 4: A small farm from FarmVille: crops ready to harvest, cows ready to milk etc.

The game also features enemies; avoiding or killing the latter is thus also an element in the game, bringing some tension into it, but this activity is not as significant as the gathering, altering and shaping of materials.

3.1.4 Case study: FarmVille

Launched in 2009 by developer Zynga, FarmVille quickly became one of the most popular applications on Facebook. Popular press reports that over 80 million players have played the game and at the time of the study had over 10 million active daily users[4]. The core gameplay of FarmVille revolves around cultivation of crops and a limited version of farming in general; whereas crops can wither and grow better if watered or fertilized, animals do not need to be fed and cannot die if not tended to. The game is time-based – both animals and crops take a certain time to deliver or grow (ranging from a couple of hours to several days) which opens up for return visits. There is no explicit goal in the game, other than creating one's own unique farm in buying, getting, or earning items (e.g. plants, animals, houses, fences, decorations) and placing them. Cooperation is prompted; some favors (e.g. watering plants) and items can only be gotten from other players.

3.1.5 Case study: Europa Universalis 3

Europa Universalis 3 is a grand strategy computer game where players control a country between 1399 and 1820, and each game state update represents one day. Players need to handle diplomacy, trade, forms of government, technology, and warfare, all with a high degree of detail (e.g. there are game mechanics for stability, prestige, legal claim to thrones, centers of trade, and national ideas). The game features no explicit goals; it is up to the player to set them, e.g. to gain certain territories, defeat certain enemies etc. An implicit goal is then to make one's nation more prosperous. As a result of the above, the game evolves very much around resource management (e.g. dealing with economy), micro management (such as placing army units and industries) and planning ahead – the slow pace of the game means that players will have to return to it time after time in order to fulfill their goals.

[4]*According to the free Facebook statistics portal socialbakers.com. Data from 2011-12-20.*

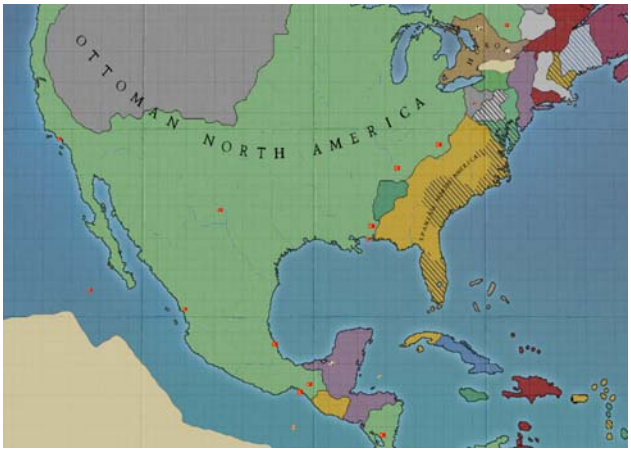

Figure 5: An alternative 18th century in Europa Universalis 3 where the Ottoman Empire controls most of North America.

4. GAMEPLAY PATTERNS SUPPORTING POTTERING

During the analysis of the games, over 30 gameplay design patterns were identified, some new and some already part of an existing collection of over 600 patterns. This section describes the six most central patterns for supporting pottering: CONSTRUCTION, NURTURING, VALUE OF EFFORT, CALM FLOW, FRAMED FREEDOM, and TENSION (for clarity, design patterns shown in SMALL CAPS). These patterns stand out since they support pottering, either by directly enabling the activities, or by indirectly doing so by prompting more specialized patterns which do.

Each pattern is described in how it can support pottering through its presence in the case studies, and how it is related to the concepts that are introduced in the background section. Due to space limitations, the patterns are not described according to the pattern template and not all related patterns are mentioned; descriptions that are more detailed are available on the Gameplay Design Patterns Wiki[5].

4.1 Construction

The action of introducing or rearranging game elements to create structures in game worlds.

The main activity in four of the games – all but Europa Universalis 3 – is CONSTRUCTION. This mechanical gameplay action is typically carried out by placing or re-ordering diegetic individuals, buildings, blocks, etc. in game worlds to create larger structures. Being able to choose where to place game elements is a form of CREATIVE CONTROL. It is worth noting that even if this shows that pottering activities can have goals, these are not the same type of goals as those mandated by games, since completing the CONSTRUCTION goals does not directly lead to winning or completing the games. When players can have radical influence on the game environment, as for example is possible in Minecraft, CONSTRUCTION can lead to PLAYER CONSTRUCTED WORLDS. The patterns of CRAFTING and CHARACTER DEVELOPMENT have similar effects on gameplay although they typically do not directly affect the GAME WORLD.

[5] www.gameplaydesignpatterns.org. (visited 2012-03-27).

CONSTRUCTION is often regulated by limited resources (often money, time, energy, or space), and thus requires MICRO MANAGEMENT. While this is found in many games, those supporting pottering do this more to pace gameplay rather than to force players to select between one option or another for entire game instances. Many of them also allow players to ignore resource scarcity through sandbox modes (Zoo Tycoon and Minecraft), cheat codes (Sims 3, Zoo Tycoon), or simply by letting time pass (Farmville). Unlimited resources do however instead create another type of MICRO MANAGEMENT in that it can require players to sort and search their collections of resources.

Although it can take many different forms, CONSTRUCTION is one of the ways players can have *Expression* or reach *Achievements* in games, and this makes it a possible enabler of pottering. Further, CONSTRUCTION often takes time, so games including this in its gameplay provide gameplay to fill *Pottering-time*, and lead to ENCOURAGED RETURN VISITS.

4.2 Nurturing

Taking care of game elements in order to seeing them evolve or develop.

NURTURING refers to the manipulation and gradual adjustment of game elements that may or may not have been instigated by the player originally, but have taken a life of their own over time and thereby refers to a dynamic process. The real world parallel to NURTURING is gardening, which was a part of the original idea of pottering where someone places a seed, watches it grow, and nurtures and prunes the plant over time. Moreover, it is close to the pottering idea of *Satisfaction* in that one can see the development of what has been nurtured but also the idea of the *Unplanned* in that one may not know exactly how things will turn out. Like CONSTRUCTION, NURTURING provides gameplay to fill *Pottering-time*.

Examples of how NURTURING can be created can be found in Zoo Tycoon. Here animals and visitors have needs (e.g. exhibit preferences and need for toilet breaks respectively) and players can perform long term NURTURING by PLEASING them in the short term. This is mainly carried out through CONSTRUCTION, either by placing objects such as trees, fences, and restaurant, or by landscaping the environment. In The Sims, NURTURING also rests on PLEASING the needs of one's sims; for instance they need to be coaxed by the player to perform daily functions like eating, sleeping, and going to work. Other means of PLEASING are CONSTRUCTION-related in that one buys or builds things for them (such as their house). Here, PLEASING one's sims is very much based on the patterns MICRO MANAGEMENT, which can be used both to form relationships (e.g. to prompt a sim to hug another), and support CHARACTER DEVELOPMENT e.g. make one's sims take certain classes or jobs, or get fit due to daily exercise sessions.

In FarmVille, Minecraft, and Europa Universalis, a sense of NURTURING is instead tied to development of one's GAME WORLD (e.g. farm or dominion). This is supported by CONSTRUCTION-related actions; CRAFTING and landscaping in Minecraft, placing crops and buildings in FarmVille, and developing regions by building improvements in Europa Universalis 3. In addition, both FarmVille and Europa Universalis also rely on that things in the game take time (e.g. planting one's crops in one play session and then returning a day later to harvest the grown plants) and the hereto tied ENCOURAGED RETURN VISITS can be said to support NURTURING in that development takes a substantial amount of time and attention.

Nurturing can be coupled to *Achievement*, in that it is satisfying to see game elements like animals or sims grow and develop. It is also typically a form of *Easy Fun*, especially in sandbox mode when resources are unlimited.

4.3 Value of Effort

The satisfaction felt when succeeding after having spent engagement, time, resources, and/or efforts on reaching a goal.

In many games, the efforts of players have an influence on gameplay, and experiencing this influence can be a reward in itself, especially if the influence builds incrementally while a game is being played and the influence is persistent or at least difficult to undo. Examples of how this VALUE OF EFFORT can be achieved in a game can be found in several of the example games, e.g. completing life goals in Sims 3, defeating arch-rivals in Europa Universalis 3, exhibiting all endangered species in Zoo Tycoon, or completing large building projects in Minecraft. Common for all these is that they depend on goals that are completed in steps. CONSTRUCTION is thereby one way of supporting VALUE OF EFFORT in games, and NURTURING may also be so if effects of it is noticeable over time. However, GRINDING (sometimes in the form of MICRO MANAGEMENT) is another way which can be found in all case studies.

Not too surprising, VALUE OF EFFORT has a relation to the pottering aspect of *Satisfaction***.** That VALUE OF EFFORT is often achieved after GRINDING (e.g. spending a long time collecting materials in Minecraft or resources in Europa Universalis 3) is not a problem for supporting pottering, since players allocate specific *Pottering-Time* for the activity but paradoxically see this time as being *The Unplanned* so that there is no problem if little progress is done in each pottering season. Moreover, additional effort usually contributes to the value. Since Value of Effort in these games is often a result of either CONSTRUCTION or NURTURING or both, it too is one of the ways players can have *Expression* or reach *Achievements*

4.4 Calm Flow

Feeling in control of the game, however without being stressed, frustrated or bored.

The concept of Flow uses a "flow channel" to describe the area in which someone's skill matches the difficulty of the activity and this can be seen as a requirement for having flow experiences. Games are typically good at keeping players in this channel since they can provide increased difficulties as players become more skilled. While similarities between pottering and flow have been mentioned earlier, it may seem that games supporting pottering would have problems of keeping players in the flow channel since they provide low amounts of TENSION and failures can in many cases be corrected. Difficulty can however depend on several different things, and one of these is having persistence. The games examined all have in common that value in playing them depend on having long-term goals while being satisfied with the interaction at hand. This possible form of flow can be called CALM FLOW since it does not depend on stressful situations.

One requirement for games to support CALM FLOW is through letting them set up long-term goals, which can be done through CREATIVE CONTROL and PLAYER DEFINED GOALS. FarmVille, Minecraft, and Zoo Tycoon do this through CONSTRUCTION while Sims 3, and to a lesser degree Zoo Tycoon, does it through NURTURING. Many goals in Europa Universalis 3, e.g. changing government type or converting populations, can be reached by

steadily committing resources and can thereby provide CALM FLOW, and EXPLORATION of the world is achievable through similar commitment.

Like other types of flow, players need feedback for CALM FLOW to be able to emerge: VALUE OF EFFORT is a way to provide this. CALM FLOW has relations to the *Pottering-Time* aspect of pottering in that one has reserved time for the activity but is not allowing too much TENSION to exist. There might also be an element of *Emotional Flux* depending on how players move in the flow-zone. Calm Flow is also closely coupled to *Immersion*.

4.5 Framed Freedom

Having a perceived richness in possible choices without feeling tension from having too many of them, or having to prioritize between them.

Being allowed to make interesting decisions is often seen as one of sought-after characteristics of games (e.g. Costikyan [10]). This requires players to have choices between different types of actions but this can become a problem in itself if there are too many choices or if the outcome of any choice is too influential on the overall gameplay. FRAMED FREEDOM saves players from being overwhelmed with choices by giving players several different and explicit alternatives but not making them mutually exclusive.

The main source of freedom in the examined games studied came from players having the CREATIVE CONTROL to set up PLAYER DECIDED GOALS, often regarding CONSTRUCTION activities. Somewhat paradoxically, these goals provide a kind of framing as well, since wanting to have a favorite animal in Zoo Tycoon or a planned house in The Sims 3 limits what other actions make sense in the game. Other types of framing can be achieved from LIMITED RESOURCES, e.g. lack of money in Zoo Tycoon or lack of ores in Minecraft, or through needs of diegetic entities that players are NURTURING. In the case studies, it is often common to frame the activity through limiting the interaction options with the game world, e.g. having inaccessible areas of the world in Europa Universalis 3 or not having animals "unlocked" in Zoo Tycoon or FarmVille. Europa Universalis 3 also provides FRAMED FREEDOM through EXPLORATION; this due to the fact that players cannot freely explore but have to invest in the different directions of exploration possible.

FRAMED FREEDOM enables players to set up reasonable goals in order to provide *Satisfaction* and VALUE OF EFFORT, and saves them from feeling too much accountability for their own experience, which incidentally, is central to the pottering component of *Accountability*. It does also support *Emotional Flux* regarding activities; players can select goals fitting their mood and wanted experience. While the games typically open up for more freedom as gameplay progresses, the presence in several of the cases of modes for SANDBOX GAMEPLAY and CHEAT CODES show how players can be give themselves more freedom if this is wanted.

4.6 Tension – or rather the lack of it

Caring about the outcome of events in a game without having full control over them.

TENSION stands apart from the other patterns in this collection since it is the *lack* of TENSION rather than its inclusion that promote the pottering activity. It needs not be entirely absent however, and can actually contribute to VALUE OF EFFORT, but if it is perceived as too prominent it can force players away from a pottering mindset. TENSION is present in several of the case games – examples include rival nations in Europa Universalis 3, crops withering in FarmVille or enemies in Minecraft – but is limited so it does not usually overwhelm the player. In all cases, this limitation is partly due to stressing events not occurring often in the games or partly due to players have some control over the level of TENSION through what they do; e.g. the only form of TENSION in Zoo Tycoon is if one mistreats animals, in which case the Zoo Inspector will stop purchase of further animals until this has been sorted out (typically by improving exhibits). This is also a reason why TENSION can co-exist with CALM FLOW in the games, or even be a component in finding the right balance between tension and safety.

The lack of *Accountability* aspect of pottering is mirrored in the lack of truly serious consequences from the TENSION sources in the cases. Players' avatars in Minecraft respawn when they die and players have a chance to recover dropped equipment, while save files can be used to avoid many mistakes or unlucky events in Europa Universalis 3. While these events are not pleasant experience when they occur, they do make for *Emotional Flux* while playing the games without necessarily having negative effects for the final outcome. Nevertheless the presence of some TENSION opens up for *Easy Fun* in that it provides some extra *Challenge*.

5. DISCUSSION

The case studies revealed six patterns related to pottering. Of these, CONSTRUCTION relates to the mechanical level of the MDA model, whereas NURTURING relates to the dynamic level, and the other four relate to the aesthetical level. Of the described patterns, it seems that the ones most prominent for pottering are FRAMED FREEDOM and VALUE OF EFFORT, since these are related to the experience – or even aim – of playing these games. These aesthetic patterns rely on the dynamics of CREATIVE CONTROL, EXPLORATION, NURTURING, and PLAYER DECIDED GOALS which in turn rely on mechanical patterns like CONSTRUCTION, CRAFTING, CHARACTER DEVELOPMENT, and PLEASING. Looking at the mental state *while playing*, it seems that CALM FLOW captures the more meditative experience of playing these games, but this aesthetical pattern is also created through the same dynamic and mechanical patterns just mentioned. The CALM FLOW is occasionally interrupted by periods of heightened TENSION in some games. This aesthetical pattern requires the player to adopt another mental state momentarily, thereby supplanting pottering with a more traditional game-like experience.

The previous section has indicated relations between patterns on different levels in the MDA model. This argues, like in the earlier case of Camaraderie (as described by Bergström et al. [7]), that chains of patterns can be identified, which link gameplay mechanics to aesthetical expressions through dynamical phenomena. Given that the aesthetical expressions relate to pottering, this shows how gameplay structures can promote the activity of pottering in games. Moreover, the study indicates how pottering, or some of the elements of pottering, can be applied to other games, through using the patterns described.

An interesting aspect is that although all of the described games utilize LIMITED RESOURCES as a form of TENSION or means to create a tempting challenge, there are ways to avoid being restricted by this; Zoo Tycoon, Sims 3, and Minecraft all provide ways of having SANDBOX GAMEPLAY. This indicates that the pleasure in pottering in itself is strong enough to create a tempting challenge (probably via PLAYER DEFINED GOALS and FRAMED

FREEDOM) and that removing limitations and predefined goal structures are motivated, and – most importantly – that game designers acknowledge this. Given that pottering is an activity normally done without the support of games, this opens up for speculation on the relation between the activity of pottering and the type of artifacts we call games. This may seem contradictory at first glance – are games not used for performing play, rather than other activities? While this makes common sense, it has been argued earlier (Björk [3]), that games, gamers, and game activities are different ways of approaching the phenomena of games. Thus, just as it might be interesting to study how people game other systems than games[6], or how gamers behave in other situations than when gaming[7], one can study how games can support other activities than gaming. Based on the cases in this paper and the gameplay design patterns that describe how they are designed, we would argue that pottering is one such activity. Here, it is important to stress that the pottering in these games are *brought by the gameplay design*. If not so, they would not have been pottering *games* but rather some form of multi-purpose tool that support pottering.

However, it is possible that pottering through gameplay design can be explained as being a part of the gameplay, seeing gaming as the main activity rather than pottering. One example is the MICRO MANAGEMENT required in the Hearts of Iron series [30] – a "sibling" to the Europa Universalis series. Here pottering is subordinate to the conflict aspect of the games. Similarly, the pottering aspect of the board game The Settlers of Catan [23] is subordinate to the trading and resource management in that game. Nevertheless, it would be an oversimplification to do so in all cases. Further, it would reduce the granularity with which one can describe what people do when using or interacting with games. The pottering in The Sims series and Minecraft can be used as examples of this; here the pottering activity is significantly stronger and can be seen as a key activity made possible by the games. Players (in contrast to gamers) of these games can select if they wish to set up clear higher-level goals for themselves (and thus engage in a gaming activity), or just engage in pottering through focusing on the situation at hand and taking pleasure in the "day-to-day" activities required, as is typical in *FarmVille*.

Saying that games can support the activity of pottering besides gaming naturally gives rise to the question what other activities games can support. While this depends on the specific design of any game, one can identify some activities that are very common; such as *Paidia* [9] or playfulness (see Kirman [22] for this in social games) which is essentially using a game as a toy. Another is roleplaying which can be described as taking on the goals and desires of someone else (including fictional characters), and storytelling performed by the players (rather than by the game system) it another still. Besides these examples, the area of serious games can be seen as the exploration of how games and/or gaming can be combined with learning. It should be noted that the games studied here do support other activities than pottering and gaming. As mentioned above, The Sims series make it easy for players to engage in playfulness, roleplaying, and storytelling whereas Minecraft allows for a certain level of playfulness and FarmVille for some level of roleplaying.

[6] See e.g. Miller et al. [27]. Further, the recent trend of gamification can be described as designing for gaming in other artifacts and systems than games.

[7] See Barrowcliffe [4] for a humorous autobiography.

The activities mentioned can be designed to be more or less part of gameplay or as their own activities, and some may be difficult to hinder players from engaging in if they want to. ROLEPLAYING is part of the defining characteristic of roleplaying games (see e.g. Fine [13]) but can be done in any game, e.g. pretending to be more attached to a game's outcome than one actually is, just for the enjoyment of others and oneself, is an example of roleplaying. STORYTELLING can actively be supported in a game (e.g. in Sims 3 and in the game The Movies) but any player may engage in it as a commentator of the ongoing activity. The distinction between different activities possible through games may also help explain why heated arguments arise regarding some games, or game-like artifacts. Discussions on whether Sims 3 is a game or toy can be understood as the Sims 3 artifact not being dedicated to supporting gaming over playfulness or pottering. When some people do not perceive FarmVille as a game or do not see any interesting challenges in playing Minecraft, this can be understood as them having individual requirements of how "pure" the gaming activity must be or what mix of activities they prefer.

6. CONCLUSION

This paper has presented six gameplay patterns central to the activity of pottering in games, and has advocated the idea of games as artifacts capable of supporting many different activities besides gaming and playing. The patterns provide suggestions for causal effect of game design choices related to pottering while the differentiating of activities in games can help give more detailed insights into specific types of games. The approach allows examination of games which question or expand on the core activity of gaming through finding gameplay design patterns which support these other activities. The gameplay design patterns identified in this process are results in themselves, describing how to support the activities in other games and helping in explaining player preferences.

7. ACKNOWLEDGMENTS

Thanks to Karl Bergström for value input feedback on earlier drafts of this paper. The work presented here was partly sponsored by the Integrated Project TA2, Together Anytime, Together Anywhere (website: http://www.ta2-project.eu). TA2 receives funding from the European Commission under the EU's Seventh Framework Programme, grant agreement number 214793.

8. REFERENCES

[1] Abt, C.C. (1970). Serious Games. New York: Viking Press.

[2] Björk, S. & Holopainen, J. (2004) Patterns in Game Design. Charles River Media. ISBN 1-58450-354-8.

[3] Björk, S. (2008). Games, Gamers, & Gaming – Understanding Game Research. In proceeding of MindTrek 2008, Tampere, Finland, 7-9 October 2008, pp. 64-68.

[4] Barrowcliffe, M. (2008). Elfish Gene: Dungeons, Dragons and Growing Up Strange. Soho Press.

[5] Bartle, Richard (2003). *Designing Virtual Worlds*. New Riders. ISBN 0-1310-1816-7.

[6] Bartle, R. (2006) Hearts, Clubs, Diamonds, Spades: Players Who Suit MUDs. In Salen, K. & Zimmerman, E. (eds.) The Game Design Reader: a Rules of Play Anthology, pp. 754-787. MIT Press, 2006.

[7] Bergström, K., Björk, S. & Lundgren, S. (2010). *Exploring Aesthetic Gameplay Design Patterns – Camaraderie in Four Games*. In proceedings of Mindtrek 2010. Tampere, Finland

[8] Blue Fang Games (2003). Zoo Tycoon: Complete Collection [Windows]. Published by Microsoft Game Studios.

[9] Caillois, R. (1961). Man, Play and Games. The Free Press.

[10] Costikyan, G. (2005). I Have No Words & I Must Design: Toward a Critical Vocabulary for Games. Proceedings of Computer Games and Digital Cultures Conference, ed. Frans Mäyrä. Tampere University Press

[11] Crawford, C. (1982). The Art of Computer Game Design. Electronic version avialable from http://www.vancouver.wsu.edu/fac/peabody/gamebook/ (last visited 2011-04-10).

[12] Csikszentmihalyi, M. (1997) Creativity: Flow and the Psychology of Discovery and Invention. New York: Harper Perennial.

[13] Fine, G. (1983). Shared Fantasy: Role-Playing Games as Social Worlds. The University of Chicago Press, Chicago.

[14] Firaxis Games (2010). Civilization V. [PC and Mac, 5th version]. Published by 2K Games. Designed by Jon Shafer.

[15] Garfunkel, H. (2002). Ethnomethodology's Program: Working Out Durkheim's Aphorism. Rowman & Littlefield Publishers.

[16] Gee, J. P. (2003). What Video Games Have to Teach Us About Learning and Literacy. Palgrave Macmillan.

[17] Hensher, P. (2008). I always knew that pottering was good for you. The Independent, 1st of January 2008.

[18] Holwerda, T. Working 16bit ALU Implemented in Minecraft. Posted in OSnews Tue 28th Sep 2010. Available from http://www.osnews.com/story/23845/ Working_16bit_ALU_Implemented_in_Minecraft (visited 2011-03-31).

[19] Huincke, R., Leblanc, M. & Zubek, R. (2004). MDA: A formal approach to game design and game research. In Proceedings of the Challenges in Games AI Workshop, Nineteenth National Conference of Artificial Intelligence.

[20] Huizinga, J. (1938). Homo Ludens. Beacon Press.

[21] Juul, J. (2005). Half-Real: Video Games between Real Rules and Fictional Worlds. The MIT Press, 2005.

[22] Kirman, B. (2010). Emergence and Playfulness in Social Games. In proceedings of Mindtrek (Tampere, Finland, October 6-8, 2001), ACM Press, pp. 71-77.

[23] Kosmos (1995). Settlers of Catan [Board game]. Designed by Teuber, K.

[24] Lazzaro, N. (2010). The Future of UX is Play: The 4 Keys to Fun, Emotion, and User Engagement. Available from http://www.slideshare.net/NicoleLazzaro/ux-week-the-future-of-ux-is-play. (visited 2011-04-07).

[25] Levine, R. (2002). The Sims Online, Wired, available at http://www.wired.com/wired/ archive/10.11/simcity.html. (visited 2011-04-07).

[26] Lundgren, S., Bergström, K., Björk, S. (2009). Exploring Aesthetic Ideals of Gameplay. Paper at DiGRA 2009: Breaking New Ground: Innovation in Games, Play, Practice and Theory. London, UK.

[27] Miller, C.M.I. & Parlett, M. (1974). Up to the mark: A study of the examination game. Guildford: Society for Research into Higher Education.

[28] Mojang AB (2010). Minecraft. [Java platform, Java applet, Sandbox Game, Alpha release]. Designered by Persson, M. & Bergensten, J.

[29] Paradox Interactive (2010a). Europa Universalis 3. [Windows & Mac OS X, 3rd version with the expansions 'Napoleon's Ambition', 'In Nomine', 'Heir to the Throne', and 'Divine Wind']. Designed by Andersson, J.

[30] Paradox Interactive (2010b). Hearts of Iron 3. [Windows & Mac OS X, 3rd version with the expansion 'Semper Fi'].

[31] Peterson, L. (2011). Value of Play - Interactional Life with the Sims. Ph.D. thesis at Gothenburg University, Sweden. ISBN 978-91-628-8233-4.

[32] Salen, K. & Zimmerman, E. (2004). Rules of Play - Game Design Fundamentals. The MIT Press.

[33] Suits, B. (1990). Grasshopper: Games, Life, and Utopia. David R. Godine Publisher.

[34] Taylor, A. S., Wyche, S. & Kaye, J. (2008). Pottering by Design. In proceedings of NordiCHI 2008, ACM Press, pp 363-372.

[35] The Sims Studio. (2009). The Sims 3. [PC, Mac OS, 3 edition], Electronic Arts. Previous editions developed by Maxis. First game published 2000 and designed by Wright, W.

[36] Yee, N. (2006). The Demographics, Motivations and Derived Experiences of Users of Massively-Multiuser Online Graphical Environments. In PRESENCE: Teleoperators and Virtual Environments, Vol. 15, pp. 309-329.

[37] Zagal, J. et al. 2005. Towards an Ontological Language for Game Analysis. Proceedings of DiGRA 2005, Vancouver B.C., June, 2005.

[38] Zynga (2009). FarmVille. [Facebook application].