GAMASUTRA
The Art & Business of Making Games

PRINT

CityVille Explained, Part 1

By Tadhg Kelly

*[In the first of a two-part series, design veteran Tadhg Kelly draws from his [What Games Are blog](#) to explain the rise to power of Zynga's massively successful social game CityVille. (**UPDATE***: [Part 2 now posted](#)*.)]*

Check out the [latest Appdata graph for Zynga's Cityville](#) - that's right, it now has nearly 70 million monthly active users, and the Facebook game only launched in early December.

I know what many of you are thinking: How does [Zynga](#) keep doing this?

At the [Getting Social](#) event at BAFTA (In London) a few days ago, this was the question that everyone was asking. While TV companies in the UK have dipped their toes into social games, such as [Corrie Nation](#), they have had pretty miserable success rates.

And yet here comes [CityVille](#), another Zynga game that looks quite a lot like other developers' games, they waltz in, do their thing, and boom! 12 million users in a week, and multiples of that shortly afterwards.

It's not just Zynga. Although clearly the most successful, the other top developers also manage to up-end the natural order of things as most media people understand it (which is to say, brands).

At the same time that [Ubisoft](#) have managed to scrape together 1.2 million users for their [CSI: Crime City](#) title, another game more generically named [Crime City](#) (no relation) has acquired 6.4m users, with no brand at all.

I decided to write an article about how games like CityVille manage to be successful. This article, which will come in two parts, goes into the specific features and explains what they do, why they work, and what I think they could be doing better. Hopefully it will give you some idea not just of what social games are doing right, but also why players might play games of this type.

What is CityVille?

CityVille is the latest in a series of city-building games on Facebook, and was released about two weeks ago. It is the latest in Zynga's range of light sim-style games ([FrontierVille](#), [Café World](#) and of course [FarmVille](#) being the main examples), and very much in the same vein as other titles like [Social City](#), [Millionaire City](#), [City of Wonder](#), or [My Empire](#).

It has taken Zynga quite a while to get in on the city-building game theme, but they have taken the time to build out their own game with their own mechanics rather than the more direct copying that they and many developers practised in the very early days.

Starting with a couple of streets and buildings, the game guides you through various tasks that you can perform (sowing crops, building bakeries, laying road, etc.) in bite-sized chunks. Rather than throw all of this detail at you at once, the game intersperses it with challenges, things to pick up, collect, friends to visit and so on.

It is click-heavy, meaning that to build a building you don't just place it and let it be built. Each click builds a phase of the building, and there may be three or four stages before a building is actually finished. As buildings generate revenue, need supplies, or crops are grown, the game does not automate those actions. Instead you manually collect coins, deliver boxes, pick up prizes, click to plant crops, click to harvest crops, and other actions.

This activity all proceeds a-pace until you run into timers. You can only collect coins from a building every X minutes, for example, which encourages you to check into the game one or more times a day. And, globally, the game monitors all your actions with an *energy* statistic that either regenerates over time, or you can buy more of with the game's *cash*.

As you do these activities more and more, you earn *experience points* (or XP), which increase your *level*. Levels unlock more buildings and rewards, which in turn let you make more stuff, increasing your maximum energy. And for a bonus effect, your energy recharges every time that you gain a new level.

You can also visit other player's cities. This has the effect of immediately giving you energy awards and boosts, as well as offering activities that you can do. You can harvest other players' crops for them, which generates mutual awards, such as XP, *reputation* points and game cash. You can apply to other players to let you set up franchises of your businesses in their cities. You can also send them gifts which cost you nothing (such as free energy).

The game continues to guide you with tasks. A task is usually quite simple, involving three or four steps. Steps might be include *visit three friends*, *build a bakery*, *collect ten strawberries* or that kind of thing. You may have several tasks on the go at the same time, as the game monitors whether you're completing steps or not, but not all tasks are immediately available. Instead, the game chains them along, with completion of some tasks opening up other ones.

Task completion generates congratulation windows, rewards, and also the opportunity to share your achievement on Facebook.

Lastly, you are largely free to lay out your city as you choose. Unlike many classic sim-strategy games (or Restaurant City, arguably the grand-daddy of these types of games), optimal layout doesn't really matter. You don't need to maintain equitable balances of components in certain areas, efficient road networks or anything like that. All of the people wandering around, as well as the plants and trees are purely decorative. This means players are free to create whatever layout they desire, and many do.

And that's the basic game design. Most successful social games are much the same, but with variations of theme. So why does this work so well for Zynga, if many of the games are the same?


Visibility

A lot of the talk around Facebook enthuses wildly about the *social graph* and *virality* as being great drivers of *engagement*, but I believe these effects are being wildly over-estimated. They exist, and are a factor, but actually only a small factor in how games spread. How Facebook really works is *visibility*.

The Facebook interface induces a high degree of user blindness. It does not do a great job of exposing new games and applications, and lacks a directory or a '*Featured in the App Store*' style of editorial (as Apple does for the iPhone), which means that for most developers there are huge problems in getting their games in front of users' eyeballs.

With all of the free advertising channels on the platform now constrained or dead, this has meant that the Facebook economy has been acquiring an increasingly Darwinian shape.

Where it used to be an egalitarian environment in which any developer could strike it big, over the last year it has become top-heavy with larger developers accruing exponential success, and cutting off oxygen to smaller companies by default.

And to the winner very much go the spoils. The Facebook economy, like the television economy, is all about dominating and converting attention rather than meritocratic-ally acquiring it, and all of the big developers on the platform have realised this. There are four basic ways that they do this.
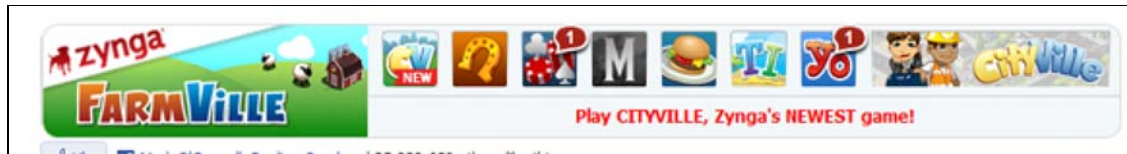
App Banners: App banners are immensely important to have on Facebook because they solve the user blindness problem. An app banner presents the player with images that they notice amid Facebook's white, text-heavy interface, but at the same time do not overload them with thousands of available choices. App banners are the core of *cross-promotion*, so each game from a developer becomes a marketing channel for every other game by that developer as well.

A recent trend in app banners has come in the form of Applifier, and some others, which offer a way for smaller developers to band together and cross-promote to each other. While useful, and in some cases very much so, third party app banners probably only have a limited shelf life before there are too many of them, or developers start making their own, such that Metcalfe's Law will start to work against rather than for them.
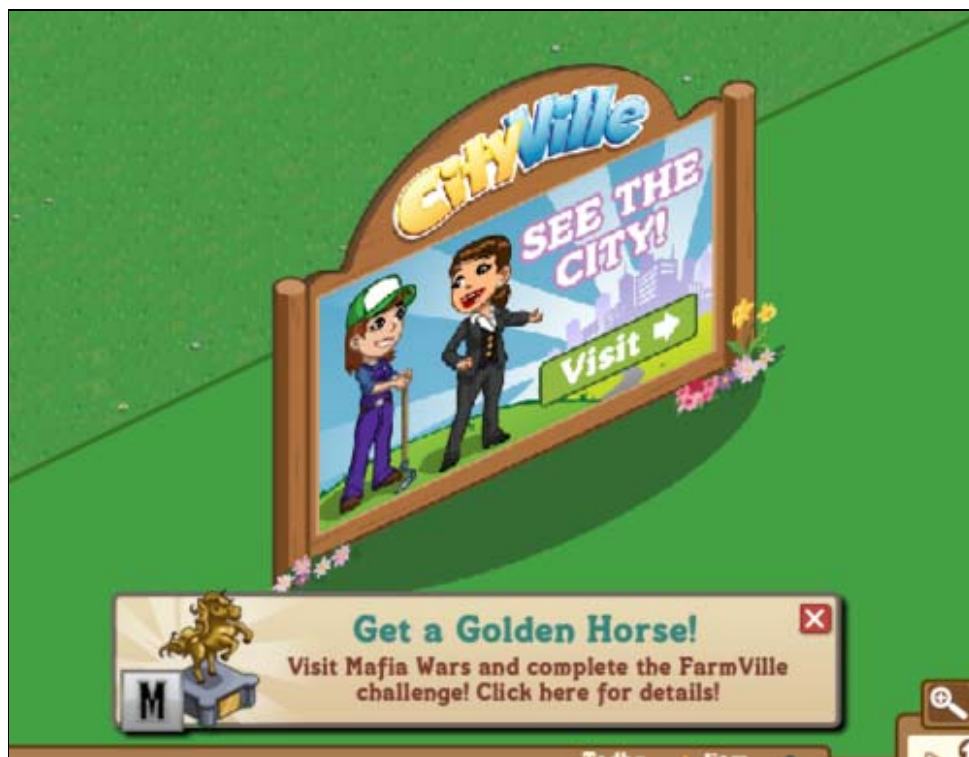
Decanting: The above image is captured from *FarmVille*, and it shows a form of cross-promotion that I call *decanting*. Decanting literally means pouring your users from one container into another, like wine. The idea is simple, but extremely powerful. If you are sitting on an ageing 53m monthly active users in FarmVille, as Zynga are, why not show them something else that they can play? Why not offer them rewards or challenges from one game to the next?

Each user that does this becomes a more invested customer, more likely not only to play your next game, but to still keep playing and maintaining their existing game. So you not only have their attention, you're keeping it, and the user is unlikely to venture outside your application's sphere to try something from a competitor instead.

Advertising: Often forgotten in the rush to praise social gaming as a new kind of business model is that most of the big players got funded very early, and used that money to develop and *advertise* their games.

Zynga was very much at the forefront of this. When SGN and Playfish were their early competitors, and later Playdom and Crowdstar came along, all of them trusted in the then-viral aspects of their games. Advertising was seen in some quarters as muddy, and Playfish in particular would boast that they had never had to tap much into their investment funds to acquire their users, but instead did it with great gameplay.

Zynga took the other view: They advertised like crazy, on Facebook itself, and in other games. The example picture above is take from Soccer Stars Football, and shows that Zynga still advertise in other games to this day.

Advertising works for the same reason that app banners work: They show images against the otherwise bare Facebook interface. They are also eminently target-able along many lines, and very easy to experiment with to increase yield. Facebook's advertising solution allows you to target players by age, nationality, likes, dislikes and lots of other factors, and Zynga use this functionality expertly to promote their games, spending a rumoured $50m or more a year on advertising and probably being Facebook's single largest advertiser.
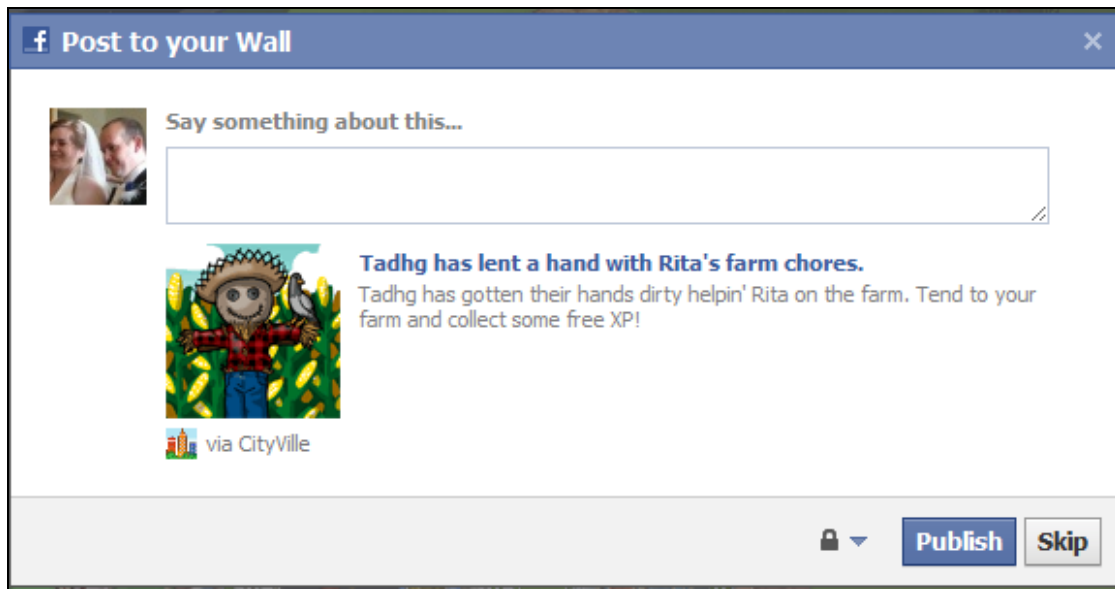
Publishing: Social games ask users to publish their game activity a lot. The basic form of publishing is the *High Scores* publish action, where the player brags that they scored more points, attained a new level or acquired an achievement in a game.

These kinds of publish action were very effective when they first came out 18 months ago, and some casual games like Chain RXN exploded in users overnight because of them, but they've become pretty ineffective these days. Users instantly recognise them and ignore them, and recently Facebook has constrained the reach of game-published stories, limiting them only to players who have already installed a game.

Games like CityVille have started using publishing as a way to offer gifts and incentives. As you can see in the image above, my published story is bragging about my achievement, but also offering free experience points to other users who click through. A variety of such incentives encourage users to come back into the game to collect their prize, and the hope on the part of the publishing player (me in this case) is that those players will in turn show me *reciprocity*.

This strategy only really works if you have a critical mass of players though. It doesn't acquire fresh users, but rather re-interrupts the attention of cross-promoted, decanted and advertised customers. It also re-acquires lapsed customers. All of which is dependent, like most kinds of marketing, on repeated exposure. The more friends you have playing and publishing, the more you will notice that game, and the more likely you are to re-enter it.

Most advertising works on that sort of constant-exposure basis, and social game publishing really is no exception.

Visibility is Geometric

All four parts of the promotion equation feed into each other and produce geometric results. As we know from Metcalfe's Law, the value of a network corresponds to the square of the individual members, and so the more users you have, the exponentially further reach you have.

In the early days of Facebook many developers practised seedy, spam-laden tactics to acquire users, and Zynga certainly was one of those. But what they've done with that attention along the way is figured out how to move it around, shift it from game to game, and keep using those opportunities to expand their reach further and further.

The result, as with all successful companies on the web, is that they're now tapping into Metcalfe-style effects. Zynga

are able to add a tonne of users very quickly into a game because they have built the channels to do so.

Success follows more success, allows exponential expansion if you manipulate it in the right way, and that's why they're now the company adding 12m users in a week to their new game. Zynga are where they are today because they've realised that social gaming is actually about building a virtual network of applications inside Facebook through cross promotion, and they raced faster than anyone else to do so.

The next question is: What are they doing with those customers when they show up?

Now let's talk about how *CityVille* keeps users *engaged*.

Most social games are considered *amusements* for the majority of players, so successful social game developers focus on delivering that kind of engagement. They are obsessed with *retention,* a commonly-used term to describe whether players return to a game or bounce from it, and the period of weeks or months that the average retained customer spends in the game before boredom finally sets in. Understanding retention is essential to achieving sustainable growth and revenue in a social game like *CityVille*.

But what are the levers of retention?

DAU over MAU

In order to understand what's really going on with a game, you need to look at the *daily active users* (DAU) as well as the *monthly active users* (MAU).

Tracking services like Appdata provide useful summaries of these statistics, as well as a calculation of one over the other. I find that the resulting percentage of DAU/MAU is the best underlying number to really know what's going on with a game.

Whether big or small, the DAU/MAU percentage tells me whether users are playing a social game as a *distraction* or an *amusement* (or even a *connection*, though that's pretty rare), and so gives me an inkling as to the application's true long term potential.

The percentage for *CityVille* started off extremely high. That's not unusual in the first week of a game's launch however, because everything is new, users are only discovering it for the first time, and the MAU figure has not had a full month to build up. A more stable example is *FarmVille*:
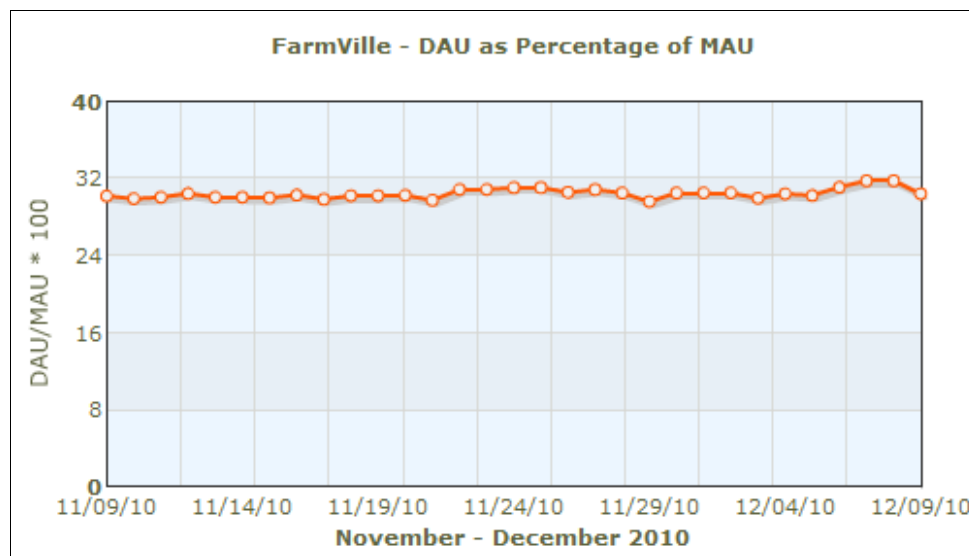
FarmVille has long been a standard-bearer for engagement on big games. These days it hovers around the 30% mark, which is fantastic, whereas many successful games exist around 20%, and some others drift down toward the 10-12%. Social applications that share quizzes and the like commonly only achieve 3-5%.

Zynga maintains one of the highest overall rates among the big developers at approximately 23%. Crowdstar has only 11%. Playfish/EA has 18%. Six Waves has 8% for its own games and 18% for games it publishes. Disney Playdom has 11%. Digital Chocolate has 16%. RockYou has 8%. Wooga has 18%.

You get the picture. Why this is so has three reasons:

1. Quizzes: The reason why Crowdstar in particular has a low percentage is because one of their most popular apps is a quiz engine. The quiz marketing tactic is a perfectly valid one, and it tends to award high MAU numbers, but low DAU. This often gives a skewed impression of how important a company might actually be in the social game space.

Zynga has no quiz engine (that I'm aware of).

2. Visibility Strategy: This is a bit of a repeat from the first part of the article, but the prevalence of publishing options in particular creates more hooks for lapsed players to return to a game. The Facebook economy works geometrically and exponentially, and that applies to retention as well as initial interest.

3. Game Activity: How Zynga structures its games, particularly with respect to time- and click-based dynamics, encourages players to remember to come back and play some more. That's what I'm going to talk about mostly in this article.

Context

Late last year, Playfish released two games that they probably shouldn't have. One was *Poker Rivals* and the other was *Gangster City*. Each was, in its own way, a better execution of the incumbents in their genre, Zynga's *Texas Hold'Em* and *Mafia Wars*, and yet each has proved to be a failure.

The lesson is not that you can't fight Zynga.

Crowdstar faced off a challenge from Zynga trying to eat its *Happy Aquarium* market with *FishVille*, and while both are well past their heyday, *FishVille* proved to be the loser. Similarly, *PetVille* tried to take on Playfish's *Pet Society*, but now has no more than 60% of *Pet Society's* users.

The lesson is that *context* matters.

A hidden, but determining, factor for retention is whether this is the first time that players have encountered that game type. As most Facebook games fall into the category of amusements on the Engagement Hierarchy, players don't distinguish them. It's therefore important to be *the first one of that type that the average user sees*.

Interestingly, this may have significant consequences for *CityVille*. After all, social city-building games have now been around for a while, and although *CityVille* is doing some things differently, the game may end up falling into the same trap as *FishVille* or *Gangster City*. It's far too early to tell.

So let's get on to talking about the game activity.

Click Click!

The core game dynamic of *CityVille* is click-to-do. Click to build, click to collect, click to plant, click to harvest, click to deliver supplies. It's reminiscent of the PC game *Black and White* in that although you are ostensibly the manager of the city, you actually do a lot of manual labour.

So much clicking is oddly compelling. The player doesn't actually have to click to do everything (collected items will self-collect if left on the ground for example) but there's a nice feeling that comes from such activity. It's interactive, and that in turn makes the game mildly immersive by making the player feel like they are doing something, even if that something is essentially just sweeping up.

Click activity on this scale also has a downside, which is that it doesn't scale well. My current city in *CityVille* is only a couple of streets in size, but when I do expand it out significantly, I think I might find the extent of such manual maintenance becomes boring.

Dual Timers

Timers prevent endless clicking. As I described in the previous post, social games like *CityVille* employ two kinds of timer: Specific timers on buildings or crops, and general timers in the form of *energy*.

Timers are deliberately staggered. Planting strawberries takes 5 minutes for them to grow, a cottage generates coins

once per hour, and corn takes 24 hours to grow. So you can see why these activities encourage repeated visits. With *FarmVille* (which uses the same system) there are many apocryphal stories of players getting up in the middle of the night to harvest their virtual beetroot. In fact this sort of timed game dynamic goes at least as far back as the Excel-in-space game *Planetarion*.
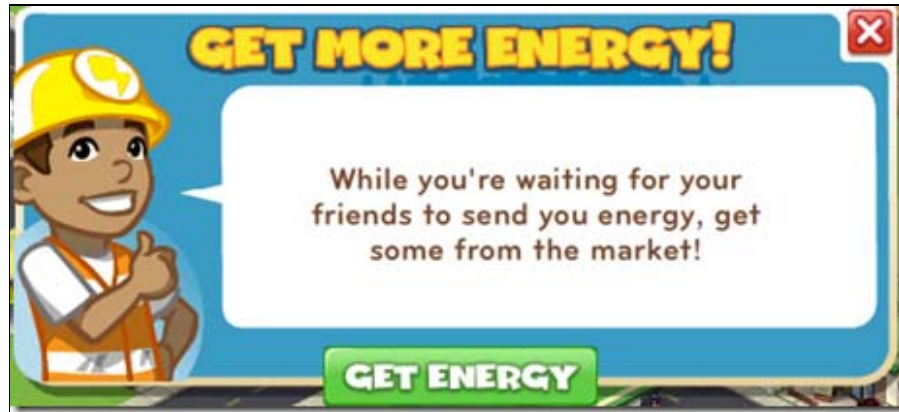
Energy works another way. It is a limit on the amount of click actions that you can take in a short space of time. Some clicks, but not all, dock the player a point of energy. Collection docks energy, for example, but supplying doesn't. Constructing a building docks energy, but clearing dead crops is free. Energy is resupplied on its own timer at a rate of one point every five minutes, or replenished if the player attains a *level*.

Timers used in this dual fashion are incredibly effective. What they do is to deliberately set up a conflict whereby players have to wait to do everything they want, but in the mean time can do some of the things that they want. Rather than use one global timer, as *Planetarion* did, the use of multiple timers creates the sensation that there is always something to do while waiting.

The mix of the two is highly compelling. While players enjoy the click activity (see above), timers essentially introduce delayed gratification, and then *CityVille* offers premium ways to circumvent some (but not all) of that delay. One of the foundations of monetisation in *CityVille* is buying more energy, for example. This gets you more activity and more clicks.

(I'll talk more about money in the last part of this article).

Pellets

The sheer number of rewards in *CityVille* is intriguing. There are two kinds of reward in the game, let's call them *pellets* and *unlocks*. Pellets are basically any object that appears on the ground when you collect from a building or harvest from your crops.

They include:

- XP stars: Experience points, which go toward increasing your level.
- Coins: The more disposable of the game's two currencies
- Energy Bolts: A free energy point. These drop about once every five to ten clicks
- Reputation Hearts: When you help friends, you receive reputation hearts
- Goods: When you harvest crops.
- Sets: Sometimes a cake or a jewel or some other trinket appears. These items belong to sets, and if you gather complete sets then you gain special awards

The trick with pellets seems to be that the fundamentals required for the game economy to function (coins, experience and goods in *CityVille*) need to be constantly available. The game might occasionally reward an extra drop of one of these pellets as a part of a regular click action, but the player expects a baseline for their hard work. Otherwise the game feels *unfair*.

The other kinds of pellet thus become *delights*. A delight is a reward of happy circumstance and the perception of luck. In a TED talk by Tom Chatfield, he describes seven ways that games reward the brain, and he talks about how the perception of randomness and actual randomness are two different things. Often when players are close to completing a set, for example, they start to feel as though the game is denying them the last piece unfairly. So games (perhaps *CityVille* is one of them) increase the likelihood that the last couple of items in the set will drop.

Delightful pellets make a game like *CityVille* feel like more than just a box of functions. They're trying to add a little layer of *thauma* into the game by saying '*This is more than just a dry simulation. Have a cake!*'. Delightful pellets make the game seem more charming, and they become compelling in their own right.

Unlocks

Unlocks are a more long-term kind of reward. An unlock opens up new areas of the game permanently for the player, allowing them to do new things that they could never do before, and altering their game experience. Unlocks extend the game dynamic, or in some cases add whole new dynamics, and *extension* is one the core ways to prevent games (especially amusements) from becoming boring.

CityVille has, broadly speaking, three kinds of unlock: *Levels*, *gates* and *task trees.*

Levels: Levels are a global monitor of how well the player is doing in the game. As the player earns XP from his activities, this goes toward attaining his next level. When he attains his next level, the game replenishes his energy, increases his maximum energy, gives him 1 *game cash* (the much harder-to-earn game currency), and unlocks new parts of the game. Unlocks might include new kinds of building, new crops or new whole areas that you can access (such as shipping).

Gates: Gates are specific parts of the game that will not permit you to progress unless you complete either a social action or you spend game cash. In the example picture, I have maximised the available population in my town and am required to build some community buildings. One of those community buildings is a police station, and to complete the building I must staff it. Staffing the building requires *game cash* (which basically means I need to buy some with my credit card) or inviting my friends to staff my station for me. Gating used to be a policy violation in Facebook games because the games used them as compulsory viral mechanisms, but these days games like *CityVille* use gating as an optional thing to do rather than basing the entire game around it.

Task Trees: Task trees give new goals to the player to complete, but space them out. As I described in the first part of the article, *CityVille* gives goals to the player in a steady fashion, monitoring a few at a time and requiring that they complete them before moving on to the next. The use of task trees creates *quests* in the game, such as a quest to set up a bakery or collect 20 cakes, and they ensure a steady supply of medium term rewards. Task trees are a significant part of reinforcing to the player that there is always something to do, or some new delight around the corner. They contribute significantly to making sure that the game does not feel sterile.

Daily Bonus

Lastly, there is the *daily bonus*.

The daily bonus is a simple reward for showing up. In early social games, daily bonuses were either flat awards or lucky draws. More recently, they have become chaining mechanisms. *CityVille* shows not only today's reward, but if you come back every day it shows you that the potential reward increases. It's a bit crude, perhaps, but players get the point. Anything that brings them back increases the chance that they will play that day, which in turn opens up all the other possibilities.

Open Loops

The closest analogy that I can think of for how retention works is waiting tables. A waitress is commonly juggling many tasks at once. There are orders to collect, orders to serve, drinks to refill, spills to clean, bills to serve, tips to collect and many other miscellaneous tasks in a live restaurant. All of which combine to create a constant flow of activity and a phenomenon called the *open loop*.

As humans, much of how our memory and attention works comes from whether we have left something *open* or *closed*. We are compelled to try and close what is open, to neatly finish off, collect the bill and receive a tip as a waitress does. Such accomplishment is of innate pleasure to us.

Open loops exist in all our lives. Writing this blog post is an open loop that I must close. Buying Christmas presents is an open loop not yet completed. Checking my inbox closes a habitually open loop. Sending that email I meant to send yesterday closes a loop. Splitting this article into a series creates an open loop in some of my readers' minds too. Maybe even yours.

Games tap into our need to close loops. Social games like *CityVille* are expert at doing so because what they create is a never-ending series of open loops. No matter how quickly you play or how much money you spend, there is always something to do, some gate to unlock, some task tree to complete, some daily bonus to claim, some new set to gather, some crop to harvest or some level to attain. It never really ends, and it overlaps various loops over one another such that even if you have run out of cash or coins, there is always something to do – but not for extended sessions.

The loops that the game creates in your mind cannot be closed until you come back later. In the mean time, have a cake!