Harry Potter, the Architect:

A Magical Influence on Gameful Design

by Danton Spina

When I first picked up Harry Potter, I was enthralled by the story and the characters like many other fans. But for me, the moment of revelation and greatest excitement was when Harry first experienced Diagon Alley. I remember the bricks unfolding to unveil a world of magical architecture. I immediately imagined visiting each shop on my own.

Since I have now read through all the books, I still believe I was conceivably more compelled by the buildings and the possibilities of magical spaces than the characters. Please do not tell J.K. Rowling. I do not necessarily think every kid was like me, a nerdy architect in training already, but I do think the impact of that moment was enduring.

The gothic medieval architecture is intriguing when it comes to buildings like those at Hogwarts, but instead of looking at the past and how that influenced our world, let us explore beyond the present. Literature and films have inspired creative design for some time. As such, it is no surprise that Harry Potter has made an impact on the world of architecture. It is feasible that the impact will grow over time. There could always be debate as to which came first, the author's mythical idea or the development of a new product in the real world.

GAMEFUL ARCHITECTURE

The focus of this presentation is ultimately on a burgeoning area of design called Gameful Architecture. When it comes to design, Gameful Architecture is a way of rethinking the design approach. Architects still have classical understandings of design and how buildings should function, but we need to get with the times. When it comes to people we still seldom include them in our procedure. Of course, technically we allow enough room for people, but we frequently leave out their perspective and their process of engagement.[1] We exclude their passions and boil them down to a typical user of a space which we are creating. We know what people want and need. Harry Potter lives in a gameful world. Why can't we? He lives in a world that plays back instead of remaining dormant. Where is that world? We are compelled by gamefulness in our lives but I'm not sure we realize how to achieve it right in front of us, in the form of buildings and public spaces.

With Gameful Architecture, the core idea is to institute more interactive design elements. An obvious example would be to turn the façade of a building into a video game screen. In fact, in April of the last three years, Frank Lee, a professor from Drexel University's gaming department along with some of his students, turned the Cira Center South building into a game screen for *Pong* and *Tetris*, respectively.[2]

Gameful Architecture has many component pieces that allow buildings to engage the public and the people using the building in a way many contemporary buildings do not currently. At the moment, there is a rise in demand for increasingly flexible spaces in design. However, the options in the industry tend to boil down to what can be defined as 'multi-purpose.' A space attempting to serve multiple purposes often sacrifices aesthetic design and architectural integrity to be anything. Buildings and public spaces in particular should be highly flexible. Multi-purpose is often misconstrued as flexible and lacks the flavor and flair of a gameful

design. Gameful Architecture is highly flexible although it is also capable of playing host to tremendous interactions.

Gameful Architecture has three components which are extremely important elements when proposing a design solution. The design must be transformable and compactable. It must allow opportunities for spectacle. And finally the creative process should explore design from a gameful perspective. With these at the core of the design strategy, a project can transform from a box of a building into a spellbinding place for engagement.

Where does Harry Potter fit into this? Each of these components has in many ways been directly inspired by the Harry Potter universe. While the architecture of Harry Potter was certainly always wondrous, it is the magic of J.K. Rowling's vast world that has had the greatest impact on Gameful Design.

TRANSFORMABILITY

Something is transformable if it can change shape, form, appearance, condition, etc. Something is compactible if it is capable of being reduced in size, shape, space, or being joined together as if condensed. Let us think for a moment about some examples of this in the Potterverse. There are many.

Perhaps the most obvious example is transfiguration, as the word has a similar literal translation and origin. Transfiguration is both an art and a core class taught by Professor McGonagall. She happens to be an Animagus who can transform into a cat.[3] Obviously, J.K. Rowling took some liberties with reality. It seems like she threw conservation of mass out the window but energy is conserved. Energy can neither be created nor destroyed but it transforms from one state to another. The Harry Potter universe is highlighting for us a key principal of science that needs to apply to architectural design.

This character has at least two states of existence, one as a human and one as a cat. In both instances, her form is suited to serve purposes directly related to being in that form. She is able to blend in to either life as she chooses. If she was a floating indistinct blob all the time instead of being able to change between these two forms, she might still be able to achieve similar things but she has no distinction and those around her would have no idea who she really was in each instance.

This sounds an awful lot like a being we should be familiar with. The boggart is a formless creature whose body takes the shape of what its observer fears most. In the case of the boggart, its existence is based on a need to change shape at will. It is extremely flexible and one could call a boggart's shape-shifting ability 'multi-purpose'. But can you describe what a boggart really looks like? A boggart has no home in fantastic beasts and where to find them. Why? Because it is nothing. A boggart does not have its own appearance. As Professor Lupin said in *Harry Potter and the Prisoner of Azkaban*, "nobody knows what a boggart looks like when he is alone."[4]

Transformability is the kind of flexibility that is necessary to encourage pedestrians to use their surroundings in new and interesting ways. Recall that multi-purpose is not transformable. People like options but completely blank slates typically lack the aesthetic qualities one needs in a space. By designing publicly accessible pieces of a building that are capable of changing in a way that has a relationship to the design of the buildings and public spaces, as well as the surrounding context, the greatest number of dynamic results are possible.[5] Studies have shown people like less options when it comes to retail and food selections. It has also been proven they use their time more wisely when choices are limited in some way or have a set of rules attached to it. [6]

There are countless more ways in the several Potter books that all emphasis the pros and cons of transformation. Some are fairly simple changes, like the brick wall behind the leaky cauldron unfolding to reveal Diagon Alley. Others are more complex, such as the Polyjuice Potion. Once again, a fundamental architectural lesson can be learned here. The best example is from *The Seven Potters* chapter in *Harry Potter and the Deathly Hallows*, in which the Order of the Phoenix members all take polyjuice potion to pretend to be Harry. Each copy of Harry is meant to be a diversion and a distraction from the real person.[7] How often do we see architecture attempting to copy an original style and thereby act as an unoriginal distraction? Such deception takes away from the original intention of the great piece of architecture and devalues it. Over time, much like with the Polyjuice Potion, the true great structures will last while the cookie-cutter copies fall by the wayside.

Flexibility in architecture is a valuable aspect, but not at the cost of aesthetics. The construction industry on a whole consumes more energy than any other industry. Therefore, making buildings that are more flexible and transformable is a wise direction to go. The materials used to build buildings have become more multi-use, flexible, or plug and play which allows for ultimate flexibility, yet the design of architecture has not caught up. If we take this flexibility further and dive into aspects of the Potterverse that are compactable, we should find many examples waiting to be reinterpreted.

In *Harry Potter and the Philosopher's Stone*, the Sorting Hat was seemingly not much more than an animatronic hat.[8] But before long, readers discovered that the hat was a keeper of a great many things, including the sword of Godric Gryffindor.[9] The trunk that contained Alastor Moody in the end of *Harry Potter and the Goblet of Fire*, was a vast cavern capable of holding a man prisoner. To the untrained and un-mad eye it was not much more than a suitcase with a bunch of funny locks.[10] One of the most compelling examples of a compactable piece of magic is the Knight Bus from *Harry Potter and the Prisoner of Azkaban*, which managed to weave through both physical space and time while keeping guests in their seats on the inside.[11]

Architects have talked about the industrialization and compression of architecture in the past, but in a way that is self-contained, like mass produced homes or housing units or those silly cookie-cutter houses. That is not what is being argued. Many architects who advocate for the use of digital fabrication discuss compactness in a slightly more compelling way. Zaha Hadid experimented with the design of an apartment unit for Ronald McDonald House at Altona Children's Hospital in Hamburg, Germany. The unit appeared as one single form conceptually. While this is captivating, the compactness still tends to be self-contained and not necessarily contextual.[12] Compactness can be used to establish great feelings of openness and expansiveness. When a compacted piece unfolds, it begins to imply greater things.

How can we distill all these transformable and compactible influences into an architectural design. We can take the commonalities across all the examples and create a template or set of guidelines for how the design process can work. A fantastic example of this is a project proposal by Shigeru Ban, an architect often thinking outside the box of typically accepted architectural thought. Ban's proposal for the M+ Museum in Hong Kong included five gigantic transformable wings that folded and unfolded like the petals of a flower to unveil a flexible set of convertible spaces within it as well. In the unfolded position the building looks like a five-sided star, which is symbolic of Hong Kong's place within China.[13] This proposal was shortlisted but ultimately Ban lost the project to a much less inspired design by Herzog & de Meuron. This design was perhaps more technically difficult and thereby rose some red flags with those choosing the winning design but conceptually it was a transformable icon. If built, it would surely have been an architectural spectacle as well.

SPECTACLE

Spectacle is an event, moment, or space of enormous cultural significance which is not observed on a regular basis. In this instance, spectacles are not meant to refer to the bewitching glasses of Minerva McGonagall or Albus Dumbledore. However, the world that these characters inhabit is saturated with examples of spectacles, good and bad. The Quidditch World Cup is an internationally famous event that pulls crowds of people together on a magnificent scale, even for witches and wizards. A floating Dark Mark in the air creates a spectacle. Instantaneously, the unexpected mark creates a stir for most. The Triwizard Tournament is another seldom seen event or series of events that cause a gathering of people beyond what is normally seen in the wizard world. And let's not forget that He-Who-Must-Not-Be-Named thrived on spectacles. He frequently attempted deadly attacks at instances with the greatest audience. Without outside observers, even if other Death Eaters, Voldemort is weaker and his name loses gravitas. But in the public eye, he can take advantage of his stage and become a performer at his best.

Spectacle is a valuable and necessary part of architecture and the 'live' aspect of it is what makes it stand out.[14] It is the event. It is the show that people are going to see. Nevertheless, as architects, we are not event planners. No matter how well designed a space may be, we cannot expect that just because we build something, it will be used for glorious and ambitious spectacles every single day. By definition, those events would no longer be spectacles. We would be doing a disservice to the space and to the people using it to assume that far more people would use a space than is realistic.

This is not to say that spaces should not be designed with ambitions for greater foot traffic than is existing. Urban design often involves a careful consideration of scale. Rather than planning on spectacles one should design a space that allows for events at multiple scales and for flexibility at the appropriate density and scale given the context. Allowing a structure with design for the possibility that spectacles could redefine the space for their own agenda is a positive way to go. Thinking of spectacle as a fluid material of space is useful in this particular design process. The actors and audience can and should be part of the designer's material palette.

Spectacle is often found in the building itself, subsequently it is difficult to find a modest structure that steps aside to make space for a tremendous spectacle. Perhaps the finest example of spectacle is Black Rock City. If this doesn't sound familiar, maybe you have instead heard of Burning Man. Burning Man is all about the spectacle with very little emphasis on building or architecture. While Burning Man is happening, Black Rock City becomes the largest city in Nevada overnight. It is also frequently praised as extremely ecologically friendly as all the participants and inhabitants take out what they bring in and do not typically leave much behind. The event is all the spectacle one needs. The magic of this spectacle is for the visitors to decide. Every guest is also a performer in a bigger show. Architecture or any semblance of it fades into the background. Ideally in the future, a nice balance can be found between a space that caters to spectacles of this scale with a building that has a function all its own.[15]

GAMEFULNESS

Interactivity is a blanket statement for something capable of connecting with a human user. It can also be a third party means for two or more humans to communicate. Gamefulness is essentially that third party means by which to communicate with humans. This is how a building can communicate with a person or how people can use a device or space to interact with one another. It is interactivity with a spirited spin on it.

Architects have classical understandings of design and how buildings should function but we are out of touch with the present. Gamefulness is an inherent human need that has been around as long as humanity. In fact, one could argue that it exists beyond humanity. Animals across multiple species have been seen engaging in play.

A principal notion of Gameful Architecture is that it is more interactive than traditional design. In the Harry Potter world, buildings aren't necessarily as static as they are in the real world. Buildings are becoming more dynamic based on seemingly practical needs, such as a building envelope or façade that changes shading based on sun and wind patterns. That example is more responsive than interactive, and don't we want to play? Escalators, moving staircases, elevators, moving sidewalks, doors, and windows are the most fun of all the architectural elements that currently exist. Why? These are the most interactive pieces of a building. These are the pieces we most often realize that we come into contact with, because we have to react to them in some way. The elevator is a not so distant cousin to the free fall rollercoaster and we find that pretty entertaining. What else can engross us? Can buildings and the public spaces surrounding buildings evolve and grow to become more engaging? If we think through building design with a bit of playfulness in the creative process, we can come up with a new way of thinking about buildings. Perhaps they can become more playful.

The construction industry has the tendency to standardize everything. We take the idea of an opening between two rooms and narrow that understanding into a door or pair of doors within a very specific set of widths and heights. We need to expand our thinking. A door could be a wall of bricks. When you tap the right brick, the entire wall opens up. Or it could be an invisible platform wall that you just walk through with only the thought that it will work as your key.

These magical ideas may seem distant from reality in the context of the book, but they are not. Arthur C. Clarke famously said, "Any sufficiently advanced technology is indistinguishable from magic."[16] If a drone flew by a person just 400 years ago, I'm pretty certain they would think it was alien or magical. If a person clapped and a light came on, it would certainly make someone think you were possessed by demons. Thinking in a gameful way has countless directions it could go. To keep things simple, let us focus on only a few of these directions to explore in a similar manor to the larger principles described previously. What are some purposes of playing a game? Some peoples seek games to fight. Others use games as a way to exchange ideas. And there are others still that want to get lost in a new world or to hide from their own.

PLAYFUL ANTAGONISM

Playful antagonism is a euphemistic way to describe fighting. It is to highlight that fighting can be a positive thing. In Harry Potter's world, fighting happens an awful lot. There are a handful of playful examples that get out of control. Quidditch is a fantastic illustration of playful antagonism even if it frequently goes too far beyond an acceptable level of playfulness. It is a game that people compete in that usually results in a fighting mentality. One of Ronald Weasley's games is yet another example of playful antagonism and likely a better one at that. Wizard Chess takes the complexity of a somewhat good-natured game of wits and adds relationships with the pieces that supplements the strategy with sometimes stubborn opinions of the pieces themselves.

Sports are board games are often frought with tension. In either situation, there are extreme fans or players who take it too seriously and get violent and aggressive, but for the most part people use either their fandom or love of the game as way to unite with similar people against a common foe. It is a form of camaraderie.

In 2014, as part of a team of architects and game designers, I was involved in the World Championship of Gameful Architecture in Witten, Germany.[17] While many of the other architectural examples in this research are purely hypothetical or referential, this example comes straight from a first-hand account of Gameful Architecture in action.

As part of the World Championship of Gameful Architecture, I was on a team of eleven people. With that team we had 72 hours to take all the information we were given for a specific public place and design and build our response that we believe best fit in that space. At a huge commencement ceremony in the center of Witten, Germany, each team was given a box with our site specific information and told where the site was located.

We walk-ran to our site, which was conveniently located very near to the camp. The plaza was called Avantgardeplatz. Our site goal was to create an intercultural communication zone. We immediately had an on-site discussion and split up into separate smaller groups to gather specific kinds of information and reorganize. The biggest take-away was that the site was already home to nearly twelve non-German minority groups and while they all gave the impression that they got along just fine, the local German people did not occupy the site in the same way as those in the minority groups. Additionally, there was a sports betting hall and a small casino adjacent to the site as well as several small local shops and restaurants.

After a lot of discussion and design studies our final proposal was essentially a mega-foosball table with multiple mini-golf-esque portions. We felt our response related to the site, as it was near two casinos, and soccer is a nearly universal language, particularly in Europe. We believed that playing a game as universal as foosball would cause people to communicate as a matter of course.

After much discussion and development over the course of the next day and a half, we had constructed a five section table with each section sub-dividable and with its own mini-game element. It became playable at two scales, that of the whole mega-game and that of each of the individual mini-games. The actual design of the table and one of the mini-games involved encompassing a tree and playing around that. One mini-game was playing on a one-sided table, meaning that two players would play against each other from the same side. This lends itself to a blank space on the opposite site where no one would be standing except fans or people waiting to play the game. Another mini-game involved a table that was transparent on the bottom and solid on the top meaning that you would have to either play blinded or play on the ground. This table lends itself to an experience on the ground. The other two involved variations of the table dimensions and layout, including topography and playing with fewer or more kickers than usual.

After transporting four out of five of our tables to the site, we had very little time to spare. We rushed the fifth table, the one going around the tree, to the site in two pieces and put it together quite quickly. Once it was together, we linked all the remaining tables together in a mad rush and added all the finishing details we could as the time ran out. One of the organizers literally counted down over a megaphone as I screwed in the last screw, “Three, two, one! Tools down!”

It was an absurdly fast pace to construct a single custom foosball table, let alone five with the level of detailing we included. Up to this point, we had only a small inkling of the public response to our table. That

inkling was based on a few locals and other team members who came to our site for a game test during the competition time at which point we had only finished one table. Finally, we had a moment to stop and reflect on our 'Epic Kickerman' as it was dubbed. Over the next few days we had an opportunity to witness first-hand how people engaged with the installation as well as each other. That was all the proof we needed. At one point, we captured a moment of a young ethnic boy and his father playing with an older German woman. They were all smiling, having a tremendous time. People ran around to other tables to watch the action when it was not at their part of the table. At one point, the players introduced more than one ball, making for a frantic and entertaining multiple dimension game. To further the level of engagement with the community, we gave local shop owners extra balls, so that in the event that they were lost or stolen from the table, players would go to a local shop, meet the shop owner and ultimately connect with them in the process of getting the ball for the game. One evening, after a lot of celebration, we came back to the camp around 2:00am and we found a group of young people still playing at the table.

The final event included an awards ceremony. While we did not win best overall, we won best community engagement and we unofficially won best craft. This installation was a wonderfully quick experiment and an opportunity to test this theory. The Epic Kickerman project is a paragon of playful antagonism. A pivotal hope of the entire movement of Gameful Architecture is that it can translate significant small scale ideas like this extra large, complexified, public foosball table into a larger scale project like an edifice, urban square, or a complex of buildings.[18]

EXCHANGE IDEAS

Allow us to investigate how we create a space that is a platform for exchanging ideas. If we look to Harry Potter what examples do we have in this instance? Was there ever social media at Hogwarts? Owls are the real world equivalent of Twitter, but that is not the ideal model of this concept. The Daily Prophet is a platform for ideas but as we know from Rita Skeeter, it might not be as diplomatic, completely open, or even truthful as we would have hoped. The pensieve is a way for one person to literally experience someone's memory from a first-hand perspective. That is certainly one way to exchange ideas. Imagine diving into someone's brain to explore their point of view.

Believe it or not, we are quite close in time to something like this occuring. Already there are video games that allow users to play from someone else's perspective. In many ways, Massively Multiplayer Online Role-Playing Games (MMORPGs) provide a user with a place to inhabit a character's viewpoint and exchange ideas with other players around the world. Instead of a physical world or even a mythical world, these games exist in a virtual world composed of complex architecture of its own. How can we bring this concept out of fantasy and into reality.

In many ways public space is already an area for role-playing and gathering to exchange ideas. Humans already know how to do this in that kind of space. However, how to we get an opportunity to see from multiple perspectives all at once. A hybrid of both an architectural and theatrical opportunity for such an interactive space could develop out of this Gameful Architecture strategy. During a stage performance, an audience typically views the show through their own eyes as the actors portray difference roles. And typically when the actors leave the stage, their world is only inferred or implied and never seen.

Envision that everyone in the audience had access to virtual reality headsets, for instance the Oculus Rift or Google Cardboard. And all the actors have a camera attached to their heads discretely. As an audience

member, you can now view the action on stage through your own eyes or you can view the action on stage through any one of the cameras. This then starts to alter the experience of the show. You can see key things that this person is doing or looking at and then the experience of the show starts to alter the architecture of the space and the set design. Characters exit the stage but when they are offstage you can see them engaging in an activity or interaction with someone or something that gives you a key piece of information that you may not have noticed otherwise. The entire performance becomes multi-dimensional and each type of performance would require a different set of offstage rooms and spaces capable of being reprogrammed and changed to fit the style of the show.

This kind of performance could evolve and include more and more complex forms of virtual reality and augmented reality. The distinction between the two is that virtual reality is entirely unreal and fictionalized. Augmented reality however is a merger of virtual information with real views in physical space. The allowance of architectural spaces for virtual and augmented experiences is going to increase and the viewer will be able to engage in a playful VR theater like the one described.

It is quite possible that a typical audience member does not want to be involved in a performance. In many game worlds, gamers are seeking an opportunity to get lost or hide and use the game as a means for this. Of course, people have been hiding in plain sight for some time but can we again draw inspiration from the words of J.K. Rowling?

GET LOST OR HIDE

If you are trying to get lost in the Potterverse, the options are vast but the amount of ways to track a person is also quite large. If you want to lose yourself you could hide underneath a Whomping Willow or hide in the Shrieking Shack. A portkey could take you from one place to an unknown place. And anything could be a portkey. There is a near-endless amount of tunnels in Gringotts. And at Hogwarts, the Marauders Map is both a means to expose the hidden and to hide. It provides a way to see your world around you in real time and avoid troubles if you wish. Most maps ensure that the user does not get lost but in the wrong hands, quite the opposite could happen.

Instead of just getting lost, what else in this world of magic allows someone to hide? The most prominent choice is the invisibility cloak, an heirloom gifted to Harry and also one of the three Deathly Hallows. There are many other examples of spells capable of making one hidden. Disillusionment charms, unplottable places, masking spells, room of requirement, and secret keepers all hide people, places or things in one way or another. Apparently, being invisible is something people want to do, whether they are a wizard or a muggle. Sometimes, people want to remain hidden or find out secrets that would never normally be revealed in their presence.

Could a building ever allow for such possibilities? Is there a use for invisibility in architectural design and construction? An invisibility cloak was constructed by Andrea Alù and Francesco Monticone, who began researching invisibility properties a few years ago. Their early studies used a stealth technology called metamaterials that bends light around an object, effectively rendering the object invisible. Up until recently, this was only possible with single colors at a time. For example, the metamaterials could become invisible to blue light but would then become visible under different light. Alù and Monticone are in the process of testing materials that can bend all the colors of the spectrum and thus developing a working prototype for an invisibility cloak.[19] Did the wearers of this cloak actually disapparate? Of course not, but by using technology they seemingly vanished. Recently a Canadian business called Hyperstealth has claimed to utilize similar technology but has not released any photos of the material in action.[20] Samsung is currently

proposing the use of LED screens on the rear of large 18-wheeler tracker trailers that would display the view from a camera on the front of the truck's cab. This again would effectively allow a person driving behind a vehicle to see through that vehicle and ultimately be able to make a better decision about whether or not it is safe to pass that vehicle.[21]

If we could apply the existing technology of a modern day invisibility cloak to a building, we could make portions of the building invisible. By using many tiny cameras to film one side of something and projecting it on LED screens on the other side. Doing this on more than one side would allow for further development opportunities. At first, the technology would only allow for us to make mullions disappear. Mullions with cameras on both sides could disappear and create the appearance of frameless glass unimpeded by structural components or limits in the size of glass sheets. Imagine invisible columns. Columns that use these same principals as the mullions would allow the bad or awkward seats behind column sight lines in theaters and nice open spaces to appear to be non-existent.

After glass sheets, the technology could advance to the point of floor plates disappearing and then corners of entire buildings would erode away from the outside while still allowing for a large amount of square footage on the inside. It would soon be possible to make the entire lower level of a skyscraper just disappear and the building would seemingly float above it, like when Harry's cloak was pulled off and his floating heads was exposed in the air. Before too long, entire buildings could appear invisible.

Since invisible buildings would require many small cameras and LED panels, the invisible panels could be programmed to take the building to the next level of gamefulness. The panels could be programmed in any way needed or desired and augmented reality could take advantage of the formerly invisible LED surface. This technology is the closest thing we have right now to a real hologram or magic. We could layer augmented reality on the buildings to display whatever we wanted. It could be the normal building but with slight unrealistic adjustments. It may well allow for uncompromised architectural design.

CONCLUSION

Ultimately, J.K. Rowling has written into existence a gameful world, full of inspiration for designers of all kinds. Promoting the use of the gameful design approach can and will enhance the world of architecture, but the range of professions that could also benefit from this strategy for design is vast. We have explored only a fraction of the areas for opportunity and the result is guidelines for designing buildings and places that begin to exemplify Gameful Architecture. By altering the design process to emphasize transformability, allow chances for spectacles, and exploit gameful thinking, designers can create engaging and interactive possibilities for the public.

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