Developing a Face-to-Face Highly Creative Play Experience

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Abstract

Through the development and extensive playtesting of *Move It!*, a mobile game that encourages face-to-face social interaction and highly creative gameplay, my team has created a game that highlights the potential for meaningful play found in videogames that support these forms of interactions. Within the context of this paper I define "meaningful play" as play that improves the lives of the participants outside the context of the videogame experience. "Highly creative" is defined as creative activities that involve the act of creation or innovation in open systems. The first half of the paper describes the declining state of face-to-face interactions and creativity exhibited in US society, how videogames, specifically street games, currently support face-to-face interactions, and I define the lack of meaningful creative play found in many current videogames using the Torrance Test of Creative Thinking. This provides context for an in-depth discussion of the unique characteristics and successful aspects of *Move It!*. The paper concludes with a review of the major lessons my team and I have learned through the development of *Move It!* and a brief description of future work. I hope the paper will encourage others to create videogames that focus on supporting face-to-face, highly creative interactions between players.

Developing a Face-to-Face Highly Creative Play Experience

Thinking creatively, generating innovative ideas and manifesting them from thought into reality, is widely considered as beneficial for society (Runco, 2004) and the individual (Pannells et al., 2008). Similarly, face-to-face interactions are essential, "one of life's most pleasant experiences…it helps fulfill people's need to belong and often leads to feelings of closeness", and is important to creating and maintaining meaningful relationships with other individuals (Kraut et al., 2006). However, throughout the past decade, studies have shown that individuals living in US society now experience less face-to-face interactions which is due, in part, to increased online communication (Shklovski et al., 2004). Coupled with a decrease in face-to-face interaction, researchers have noticed creativity scores declining for the first time in decades. Kyung Hee Kim, a researcher at the college of William & Mary has analyzed 300,000 results from the Torrance Tests of Creative Thinking taken by children and adults and noticed that creativity scores have been declining since 1990 (Bronson et al., 2010), which potentially indicates that creative activities are less important to individuals living in US society. The medium of videogames can uniquely support playful activities that engage players within a highly creative, face-to-face social context. As creativity scores decline and our increasingly digital society continues to make face-to-face interaction seem difficult, developing videogames that support and encourage these activities is extremely important. Unfortunately, the majority of videogames do not adequately support these types of meaningful gameplay experiences.

Face-to-face Interaction in Videogames

The potential for meaningful play to form strong social connections between players and engage them in highly creative activities is mitigated by a number of factors despite the fact that many videogames easily connect players with each other and require some form of creative problem solving. The most readily apparent factor is an inherent aspect of the medium itself: players experience all videogames through a digital display. It is this focus on the "video" aspect of videogames that normally prevents players from establishing face-to-face connections with each other through gameplay. Research by Rob Kraut and Sara Kiesler (2003) has demonstrated that social interactions online are generally less meaningful than the face-to-face interactions that occur between friends, family, and coworkers. It seems reasonable to extend this conclusion to include other social interactions that are mediated by digital displays since they remove the immediacy, nuance, and importance of face-to-face contact just as effectively as email and other online forms of communication. The large majority of videogames created over the past four decades clearly focus the player's attention on a digital display device and this has limited or removed the potential for meaningful face-to-face interaction they could support. However, there are some recent videogame-inspired games, called "street games", that showcase how developers can use technology and maintain player-focus on elements that exist outside of a digital display.

While the large majority of published videogames continue to focus the player's attention on a digital display, the Come Out and Play festival, held annually in New York City over the past four years, highlights the potential for videogames to encourage face-to-face interaction amongst the participants. Many of these games encourage players to

explore sections of the city in groups, using smartphones or other digital devices, and complete objectives together. These games do not necessarily focus on the digital display used to supplement gameplay, but they instead highlight the interactions between players and their environments. For example, in the game *SCVNGR* (Scvngr, 2009) players form teams or chose to play alone by running to various locations in the city using their smartphones as a navigating device. Once they arrive at a location they are tasked with completing an assignment or exercise like taking a picture of each player mimicking a mannequin or writing a note for other players to find. They share these experiences with their friends in real-time both offline and online through social networks. Although the extrinsic goal of the game is to earn the most points, the game is meaningfully focused on the intrinsic joy players feel as they explore the city and share this experience with their teammates or competitors. Many of the other street games featured at the most recent Come Out and Play festival like *Human Asteroids* (Fortugno et al., 2009) or *Gentrification: The Game* (Atmosphere Industries, 2009) also focus gameplay on interactions amongst individuals with the support of digital display devices. They are all fantastic examples of games encouraging face-to-face play in social settings.

However, these games are most often seen at festivals and require a large amount of manpower and time to properly operate. While *Move It!* is focused on the interaction between two individuals to create a gameplay experience that can be played anywhere and at anytime, I feel that street games, regardless of how much technology they use, could be a great form of inspiration for developers who wish to pursue supporting face-to-face interaction within the videogame medium.

Creativity in Videogames

Another mitigating factor to supporting creative face-to-face experiences in videogames is related to their focus on the internal systems contained within the game. Many videogames support and require creative problem-solving skills to progress through a game but these problems are often linear and exist within the closed system that represents game mechanics utilized by the game. These insular, closed gameplay systems severely limit the amount of innovative thought that can occur because the size and scope of the game is completely pre-determined. This limits the creative potential that can be supported by gameplay and I argue that it places a severe restriction on the meaningful level of creative play a game can generate. Adequately discussing the level of creative play supported by videogames is impossible without a better understanding of what defines highly creative meaningful play. While nothing has been designed to test the supported level of creative activity in a videogame, the Torrance Test of Creative Thinking can be used to best demonstrate how most videogames do not adequately support strong, highly creative experiences.

American psychologist Ellis Paul Torrance created the Torrance Test of Creative Thinking in 1966 to quantify individual's creativity. It has been revised many times over the past forty years and continues to be used by researchers and psychologists throughout the world. The test measures creativity by scoring a participant's answers for a variety of creative exercises using three scales: fluency, originality, and elaboration. These questions are open-ended and generally require the test-taker to draw lines on abstract images to create pictures that represent real-world objects, envision how a certain product could be improved, create stories from various images, or answer similar types of

questions (Dow, 2003). While the specifics of applying this test to videogames is outside

the scope of this paper, I think it is potentially valuable to analyze the similarities of these

test questions to gain a better understanding of what defines highly creative activities.

The most noteworthy and similar attributes exhibited by Torrance Test questions are their

focus on engaging the participant in the act of creation and innovative thought in

incredibly open systems. Sample questions taken from an example of a Torrance Test

used to educate graduate education students at Indiana University help support this

conjecture. One question asks the participant to "Try to improve this stuffed toy rabbit so

that it will be more fun to play with." The participant is shown a clip-art picture of a

rabbit next to the question and given three minutes to write as many answers as possible.

The following sample question is equally open-ended: "Just suppose that people could

transport themselves from place to place with just a wink of the eye or a twitch of the

nose. What might be some things that would happen as a result?" Therefore, I propose

that highly creative videogames are videogames that require the player to engage in the

act of creation or innovative thought in open systems of interaction where there is no pre-

determined "correct" answer to puzzles or solutions to presented problems.

Unfortunately, when analyzed with this constraint in mind, it is readily apparent that most

videogames do not support highly creative play.

Many First-person Shooters base gameplay progression on a player's ability to

kill enemies with a variety of weapons, Platformers require the player to frequently find

and collect a number of items scattered around the world to score points or earn extra

lives, and Role-Playing Games allow the player to choose between a small number of

dialogue options to achieve a certain goal. While the player can usually complete these

tasks using a variety of tactics, they are limited by the relatively shallow amount of actions their character can perform within the context of the game. Many games include puzzles that require creative thinking by tasking the player to determine the correct order objects should be pushed onto switches but the level of creativity supported by the experience is necessarily limited since there are usually only one or two solutions to the puzzle. Moreover, most games are devoid of any real act of creation and while this trend is starting to change as some games now include level-editors, these level-editors are optional activities that are separated from the core gameplay experience and function as an opportunity for a player to create additional content to explore.

I believe that videogames need to support more open-ended experiences or experiences that are focused on creation to produce the opportunity for highly creative meaningful play. Luckily, in the past few years, a number of games have been made like *Scribblenauts* (5th Cell, 2008), *Little Big Planet* (Media Molecule, 2008), *Infinite Blank* (Balster, 2010), and *Playpen* (Woods, 2009) that are open-ended and support highly creative interactions. *Scribblenauts*, for example, is a 2D platformer where the player is tasked with helping the main character touch a Star located in each level. Players must enter the names of real-life objects or things to help their character overcome obstacles. The game manifests these objects with unique characteristics that represent what the player entered into the gameworld. For example, in one level the Star is located on a cliff that is positioned over a body of water. The player can enter the names of nearly any type of flying device and then position the character to ride that device to touch the Star. Alternatively the player can enter the name of different weapons or a boomerang to shoot the Star from its lofty perch. Once the Star falls into the water, a

player can create a net or boat to retrieve it from the water. The game can identify

thousands of different words and create unique representative objects in the game. The

gameplay experience this system supports is immensely creative as there are a wide

variety of object combinations the player can use to attain the Star in each level. While

these games stand out as phenomenally creative experiences, they represent the exception

rather than the rule. Nevertheless, they are great examples of games that truly support

strong creative activities that mirror the tasks utilized by academics and other researchers

to test the creativity of other individuals. This analysis and interpretation of the Torrance

Test of Creative Thinking has created a type of litmus test for highly creative activities

that my teammates and I have used to help us focus and refine the core gameplay

experience of *Move It!*.

Move It! Gameplay Description

Move It! is a cooperative multiplayer game for the iPhone and iPod Touch that

encourages creative, motion-based social interactions between two players. Players

create a Move, a set of motions tracked by the mobile device, based on a Suggestion, an

open-ended prompt, and synchronously execute this Move together to achieve a high-

score and unlock more Moves to complete. Players are scored based on how well they

are able to sync their movements, the Duration or length of the Move, and their shared

Intensity Score or amount of intensity measured by the device. The overarching design

of the game focuses on the experience between the two players so the user interface is

minimal and consists primarily of screens that help players connect their phones via

Bluetooth, choose Moves to complete, a score breakdown of the points earned, graphs

that visually depict the intensity of their movements over time, their Relationship Level, and statistics relating to the Moves they have completed in the past. Typical game sessions last between 10 and 30 minutes and players will usually complete between 5 and 15 different Moves during this time.

Each Move is associated with a unique Title, Duration, Intensity Goal, and Suggestion. Players take turns selecting Moves to complete as they play the game. During a Move, players accumulate intensity as they move their devices and the more they move, the greater Intensity Score they achieve. If the Intensity Score during a round of play is greater than the Intensity Goal associated with the Move they chose, the players earn a large amount of bonus points. The Duration of a Move is relatively short, between 1 and 15 seconds, and this attribute, combined with the Intensity Goal, helps determine a Move's overall difficulty and score potential. Longer Moves that have higher Intensity Goals are harder to complete synchronously but allow players to potentially earn a higher score. Although players are allowed to combine any set of motions to create a Move, most Moves are accompanied by a Suggestion that helps jumpstart the players' creative process. These Suggestions like make it rain, cast a magic spell, do the happy dance, etc. are open-ended, humorous, and help gameplay flow at a steady pace.

As players complete various Moves and achieve high-scores, they upgrade their Relationship Level and unlock additional Moves. The Relationship Level is a descriptive label that is associated with the two players whenever they play the game together. They are allowed to select between three different options when they achieve a new level after completing a set number of Moves and they must agree on the label that defines their relationship before progressing through the game. Maintaining the light-hearted tone of

the game, players can potentially be labeled as Bros, Go-to-Besties, BFF, etc. and the labels change with each subsequent Relationship Level. Although each individual Move takes a relatively short amount of time to complete, it involves a meaningful combination of creativity, face-to-face communication, physical movement, and teamwork that few other games support.

The act of creating a set of motions and trying to sync these motions with another person is a powerful form of expression and cooperation that is difficult to achieve through other means. Before players' execute a Move, they must collaboratively create a Move together. There isn't a standard set of motions they must follow and the only limitation inherent to the gameplay is that the game can only track the motions of the hand that is holding the device. Players are able to move the device in any direction and at any speed, which allows players to be extremely expressive with their motions. Moreover, we have observed that players are naturally inclined to move other parts of their body when creating a Move even if it will not directly affect their score in the game.

The collaborative nature of the gameplay experience genuinely brings people closer together and forcing players to look at their teammate as they create a Move helps solidify a surprisingly strong bond between them. Players must look at their teammate as they attempt to mirror each others' movements if they wish to earn a high-score. This simple act of removing the focus on the display device and redirecting it towards the player's teammate has a profound effect on the play experience. Additionally, due to the open-ended nature of the gameplay experience, players must creatively interpret the Suggestions together, or ignore the Suggestions and create completely new Moves, to progress through the game. Players creatively and artistically interpret what a Suggestion

represents and then actualize this interpretation in a set of motions that form their Move. This act of analysis and interpretation that leads to the actualization of the Move closely resembles some of the questions and creative exercises utilized in the Torrance Test for Creative Thinking. The Suggestions that help jump-start the player's creative process evoke concepts and ideas taken from the real world and are specifically removed from any notion of an insular virtual world that only exists within the videogame. This helps emphasize the intrinsic social experience of creating and enacting Moves with a friend as opposed to playing a game mainly to progress through the game. The combination of these creative and social features produces face-to-face play that is intellectually and socially meaningful for both players. While the game has always maintained the same core set of design principles, the initial version of the game was quite different from its current implementation.

Lessons Learned

Move It! began development as part of a student-pitched project in August 2009 at Carnegie Mellon's Entertainment Technology Center and it is currently scheduled to be released in December 2010 as a free app for iPhone and iPod Touch mobile devices. The first version of *Move It!* was created by a team of four including Camilo Garcia, Theresa Chen, Aaron Vanderbeek, and myself and Aaron and I have continued development after we graduated from Carnegie Mellon in May 2010. Our team has held over 50 different playtests for various versions of the game and the current implementation is the result of continued iteration based on this playtesting feedback and lessons we learned developing this unique type of interaction.

The most important lesson we learned throughout development was to constantly focus on supporting the two core elements of the game that help make the player-experience meaningful: transferring player focus away from the digital display and onto the players and encouraging open-ended collaborative creativity. Our most important iterations highlighted and supported these core design principles. Although it is worth noting that we did not explicitly set out to create a meaningful game and, instead, were more focused on creating a genuinely new gameplay experience. The genesis of the project stemmed from an idea Aaron had about developing a game where players would create and enact secret handshakes with each other. Extensive iteration and playtesting have led us to the current version of *Move It!* and while it is crucially important that we recognized what made this gameplay experience meaningful and emphasized these aspects as much as possible, we found that it is not necessary to set out to make a meaningful game that supports specific type of experiences from the onset of the development process.

Despite the connection to real-world activities like creating secret handshakes or dance moves and the easily approachable motion-centric gameplay, players still found the game somewhat difficult to grasp. We learned this was partially due to a variety of non-essential features that detracted from the core experience. While we removed several features in the game to streamline the experience, removing various on-screen visualizations proved extremely beneficial. These visualizations, while they were aesthetically pleasing and effectively conveyed gameplay information, encouraged players to look at the screen while conceptualizing or executing a Move. For example, the original Menu screen contained a visualization of the intensity of the player's

movement in real-time, similar to a microphone's volume meter, while updating a bar graph that represented the player's intensity over the past 15 seconds. We also created a similarly detailed and visually complex graph that changed colors based on the player's Intensity Score that was displayed during the execution of a Move. While these visualizations provided the player with valuable information relating to the intensity and accumulated intensity of their movements in the game, they distracted the players from focusing on mirroring each other's movements. We made the difficult design decision to remove the aforementioned visualizations to streamline the game experience and it has helped players focus on the interactions between themselves. We also made the conscious decision to minimize the amount of complicated language or special terminology used throughout the game. The use of straightforward rhetoric and direction was quite successful in making the game more readily approachable to naïve users and it helped keep players focused on the important interactions that occurred between them.

The original version of *Move It!* did not include the Relationship Level mechanic and we implemented this mechanic in a later version to further emphasize the importance of the social aspect of the game. We considered implementing the mechanic in a more robust, complicated manner that required players to seriously discuss and contemplate their relationship whenever they achieved a new Relationship Level but we decided that a light-hearted approach was preferable. The serious implementation would have felt overbearing and it, subsequently, would have made playing the game feel more like work. This implementation would have transferred focus away from the intrinsically fun elements of the game and onto the extrinsically perceived importance of increasing the closeness of their relationship. However, directly addressing the meaningful aspect of the

game in any manner still runs the same risk of diluting the fun and meaningful impact of

the experience. Our current implementation allows players to have fun while

encouraging them to more readily think about this important aspect of the game on a

subconscious level rather than a conscious level due to the mechanic's light-hearted

tone. While we believe this mechanic will not detract from the gameplay experience, it

has not been fully playtested with a large enough group of individuals to satisfy our

lingering concerns. Regardless, directly addressing the meaningful aspect of a game in a

humorous manner could prove to be beneficial for similar games and we encourage

others to consider experimenting in a similar fashion.

The first version of the game did not include different Moves players could select

and instead allowed players to select the individual components of each Move (Duration,

Intensity Goal, Music) before creating a set of motions. Afterwards, players were

encouraged to create any combination of motions they could imagine in a completely

open-ended experience. They did not receive a Suggestion and were forced to create a

new Move from scratch. We thought the extremely open-ended nature of the gameplay

would make the creative collaborative experience more meaningful. Through extensive

playtesting, we learned that most players found it difficult to spontaneously act in a

creative manner. Players tended to shut down, get confused, or simply stop playing for a

long time as they attempted to think of a set of motions to perform. Although the current

version of the game still supports this open creativity through Freestyle Moves that

encourage players to "generate any type of Move", most of the Moves now have specific

Suggestions. This revision has significantly decreased player confusion and positively

impacted player enjoyment of the game. It allows players to start mirroring each other's

motions more quickly and this made the entire experience more enjoyable. Moreover, we continually witness wildly different interpretations of the Suggestions we give players during playtests. For example, during three, back-to-back playtest sessions, I noticed that all three groups of players created different Moves for the prompt "Make it Rain". The first group of players used their hands to mimic rain falling from the sky, the second made motions as if they were doling out money, and another group created a unique dance move to "get the party started". While this particular example sticks out in my mind, we have consistently noticed this type of varied response to various Suggestions during many playtests.

Conclusion and Future Work

Aaron and I hope to finish development of *Move It!* and release it for free in the App Store by December 2010. We need to optimize various aspects of the source code, playtest the Relationship Level mechanic, and we are considering trying to integrate *Move It!* with Apple's Game Center to utilize Apple's Achievement and Leaderboard systems. After release, we will potentially look into developing a single player version of the game using the capabilities of the iPhone 4 gyroscope to track the actual motions players make in 3D space and generate artistic rendering of this data that can be shared with others around the world. Regardless of our development plans for *Move It!*, I am excited about the future of videogames that encourage face-to-face interaction and open-ended creative play.

There is ample room to develop a wide range of meaningful games around cooperative creative experiences that support real-world, face-to-face interactions. This

specific area of game development is incredibly open and with the proliferation of smaller, increasingly mobile gaming devices, I can envision a number of new, meaningful games that have yet to be created.   For example, I can envision an alternate reality graffiti game where players create virtual pieces of graffiti art with friends for others to digitally view in a city. In a different game, players would place sound objects in the environment for others to play as they physically move near them. The recent advancements in mobile technology and the proliferation of smartphone use make the opportunities to explore this form of meaningful play seem nearly endless.

I am excited by the thought of playing these unmade games and discussing other possible interactive experiences based on these core design principles with developers, students, and academics. Ultimately, I hope this case study of a unique and meaningful game currently being developed encourages others to create similar games that entertain and connect individuals in the real world, through the mutually beneficial act of face-to-face highly creative play.

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