PLAY TO LEARN

by

Michael John Dawson, M.A.

MASTER'S PROJECT

Presented to the Faculty of

The University of Houston-Clear Lake

In Partial Fulfillment

Of the Requirements

For the Degree

MASTER OF ARTS

in Digital Media Studies

THE UNIVERSITY OF HOUSTON-CLEAR LAKE

MAY, 2018

PLAY TO LEARN

by

Michael John Dawson

APPROVED BY

_____
Michael C. Brims, M.F.A., Chair

_____
Anne M. Henry, M.F.A., Committee Member

APPROVED/RECEIVED BY THE COLLEGE OF HUMAN SCIENCES AND
HUMANITIES:

_____
Samuel L. Gladden, Ph.D., Associate Dean

_____
Rick J. Short, Ph.D., Dean

Dedication

For Jai Dawson, a lifelong learner.

Acknowledgments

I cannot thank my wife, Meera Dawson, enough for her help and patience. To her, I owe a year of backrubs. Radhika Dhingra was also of immense help and spent far more time assisting with the paper than anyone could expect. She is a scholar and a magnanimous person.

Throughout this project, Professor Brims never once appeared frustrated and never gave up regardless of the difficulty. He is a person with a seemingly infinite well of patience. If nothing else, I hope I have learned this with my students, thank you.

To all who directly assisted with the film, I thank you. None more so than my friend and colleague, Professor Phil Snyder.

ABSTRACT

PLAY TO LEARN

Michael John Dawson
University of Houston-Clear Lake, 2018

Master's Project Chair: Michael C. Brims
Co-Chair: Anne M. Henry

Play to Learn is an educational documentary film that uses several highly stylized and experimental techniques to tell the story of Professor Snyder as he learns about gamification. The purpose of the film is to introduce the topic of gamification, discuss its underlying theories, and outline its benefits to professors. The documentary uses storytelling, old educational films, and expert interviews to accomplish its task. This narrative presents an analysis of the movie through precedents, gamification research, stylistic choices, rationales, technical decisions, distribution strategies, and lessons learned from the filmmaking process.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER I: INTRODUCTION

I am lecturing at yet another classroom full of first-year students. My slides are chock-full of images. My voice rapidly changes in pitch, speed, and volume. I have their attention for about ten minutes before their eyes fall to their cell phones and their heads rest on their desks. I try to call on one waning student – what was her name again? Like so many times before, I project my voice over the crowd: "You, in the fourth seat, what do you think?" This buys me a few more minutes, but my ad hoc process of trying to engage the class does not hold their attention. My tone lowers as I continue with my waterfall of information into overfilled skulls.

Like many teachers that strive to create deep learning in students, I cannot compete with the superabundance of distractions and short attention spans. Digital media has exploded. Where television was once five channels, it is now a thousand apps. Where once there were only a few dozen local radio stations, there are now a hundred podcasts. How can my lone projector in a crowded classroom engage students? How do I connect concepts to declarative ideas? How do I keep their attention?

The answer lies in my own experience. Playing games, whether it be a video or board game, is one of my favorite hobbies. I love the immersive environments, the storytelling, and the challenge of getting better at the game. Through my enjoyment of gaming, I discovered Das Valdez, a video game streamer that uses the Kerbal Space Program to teach about science and space. By using the chat channel that accompanies his stream, he generates discussions and questions about not only how to play the game but also about aerospace and science. Inspired by this engaged mode of learning, I chose to explore learning through games in the classroom, a process known as gamification. I then delved head-on into researching the subject, studying everything from the theories behind it to how to implement it in a variety of classroom settings.

1

Gamification has long been used in the business world to teach employees and customers (Smith, 2015), but its implementation into traditional classrooms has been slow. Although previously unavailable, numerous educational resources have recently arisen, like Minecraft: Education Edition, Filament Games, Kahoot, and Blended Play. Therefore, the limited use of these resources in the classroom is bewildering. While games do not fit every circumstance, they can be used in more instances than most teachers realize. A need to disseminate these ideas to instructors could not be more evident. My solution is the educational film, *Play to Learn*, which introduces the viewer to the idea of games in the classroom as well as exploring the underlying principles of gamification.

CHAPTER II: LITERATURE REVIEW

For any film to be successful, research must be done not only on the content of that film but also how it fits into films of the same genre and films with similar themes or objectives. For a review of the gamification research used in the film, see Chapter III. This research into the "literature" of cinema must answer several questions. How do this film's characteristics, design decisions, and execution compare to existing films? In what ways is it a truly original piece? Is making the film justified? To understand where *Play to Learn* fits into the collection of similar films, a discussion of related films is essential.

Play to Learn builds on the well-developed genre of educational documentaries to create something unique. In fact, no one film is a direct comparison to *Play to Learn*. Instead, only specific elements of previous films relate to aspects of my film. The most difficult and prominent aspect of *Play to Learn* is its goal of teaching the viewers the concepts and emotions associated with the enormously dynamic subject of gamification. Similarly, the review of films must focus on this aspect, along with other documentary filmmaking styles. The following films have features that in some way connect to *Play to Learn*.

The most direct precedent for *Play to Learn* is Karl Kapp's Gamification for Interactive Learning course found on Lynda.com (2017). This online course covers precisely the same content of *Play to Learn*, but it conveys it directly in a lecture format without storytelling. While it does contain a few visual elements, the course largely consists of Karl Kapp talking directly to the viewer. This is an excellent film to compare to as the breakdown of information. Although few existing films present information regarding gamification, a comparison of storytelling, audience considerations, and instructional design will help further support the fact that my film is truly unique.

As the iterative development process of *Play to Learn* worked out, one film stood out as a structural guide for presenting complex information. That film is *The Secret Rules of Modern Living: Algorithms* (*SRML*), a 59-minute-long educational documentary produced by BBC Studios that covers the topic of computer algorithms in detail, including their history and their modern applications (Briggs, 2015). Both *Play to Learn* and *SRML* break down the information so the viewer can understand it, but *Play to Learn* goes about this in a very different fashion. *SRML* breaks down the information into digestible chunks using visual animations and metaphors, while *Play to Learn* uses more emotional reasoning through storytelling, powerful acting, and interviews with passionate experts. The differences can be attributed to factors like one being a much longer film, having a broader scope, and a different target audience.

At one point in *SRML*, the host goes onto the street to teach passersby how to win a game by learning how an algorithm works. The penalty for losing is eating a hot chili pepper. Though this is a clear and unique example of gamification, it is perhaps not appropriate for the target audience of *Play to Learn*.

Another comparable documentary is *The Language Master* by the BBC Studios. This film was released on March 23, 1997, and it covers Michel Thomas's teaching methodology through a test case of sixth graders learning French, his personal history as a French resistance fighter in World War II, his strong belief in education as the center of democracy, and obstacles to adoption of his teaching methodology on a wide scale (Levy, 1997). *The Language Master* is similar to *Play to Learn* in that both target educators. Similarly, both films seek to generate excitement about educational techniques and suffer the same impasses to convince teachers and administrators to employ those techniques. Once again, however, their methods could not be more different. While *The Language*

Master does use storytelling to share Michel Thomas's life story, it does not use the same literary aspects of fictional or frame storytelling. (Levy, 1997)

Based on these examples, *Play to Learn* covers a truly unique subject matter with a one-of-a-kind approach. A careful review of the massive body of documentary films reveals only the building blocks that *Play to Learn* uses in its film processes. It is a film that both builds upon previous ideas and stands apart from them.

CHAPTER III: BACKGROUND RESEARCH

Play to Learn required a concerted effort in gamification research. This chapter is a broad overview of that research. Although research into gamification has mixed results, overall there is positive evidence that gamification improves motivation, long-term recall, and understanding of conceptual information.

Before discussing the possible positive outcomes of gamification, terms must be defined. However, despite gamification being decades old, terms are inconsistently used in the research. Therefore, for *Play to Learn* and this paper, Karl Kapp's terminology will be used. In Kapp's (2017) Lynda.com course, games are defined as "a system in which players engage in an abstract challenge defined by rules, interactivity, and feedback resulting in a quantifiable outcome or objective, often eliciting an emotional reaction." He continues by defining gamification as adding game-like elements to learning activities in a teaching environment.

 Self-determination theory is key to understanding how gamification affects motivation. According to this theory, the motivation to learn is influenced by three components: autonomy, competence, and social connectedness. Autonomy is a sense of control or a feeling that the actions of the individual determine outcomes. Competence, which is sometimes referred to as mastery, is the idea that problems can be solved progressively, or in other words, that information can be broken down into tasks the learners feel confident they can complete. Lastly, by socially interacting, we derive a sense of community and are motivated to perform to that community's expectations. By incorporating these elements, gamification may improve motivation in learning (Kapp, 2017).

Additionally, Weinschenk may shed some light on the issue by focusing on reward mechanisms. This author states that the intrinsic motivational aspects of

gamification are more effective than extrinsic motivators. The author suggests three ways of providing intrinsic motivators that can be achieved through games: giving learners' control, providing clear feedback, and giving correct levels of challenge. When gamification is used effectively, control is provided by allowing learners to do what they want, when they want to do it. Feedback is contextual within the game because "it made something happen," and games provide the correct degree of challenge; they should not be too hard or too easy (Weinschenk, 2016).

Long-term recall may also be positively affected by gamification. With long-term recall, Wouters, van Nimwegen, van Oostendorp, and van der Spek (2013) found that "the results on knowledge and cognitive skills suggest that training with serious games is more effective than training with conventional instruction methods" (p. 10). Furthermore, they stated, "the retention outcome shows that the cognitive gains are not attributable to the "freshness" of the learning material [but that] these gains persist in the long term" (p. 10). However, in the same study, they found that gamification was not more motivating than standard teaching (Wouters et al., 2013, p. 13). Wouters and colleagues' statement regarding motivation, however, is contrary to other authors.

In conclusion, research into the effectiveness of incorporating games in a classroom setting is ongoing, but preliminary findings are promising. Many studies show moderate to strong benefits, such as Filament Game's Planet Mechanic Study showing a grade increase of 10% with a mix of gamification and traditional instruction (Pittser, 2016). However, the wide variety of ways games can be incorporated into a classroom makes it difficult to show causality. That being stated, most research shows a positive benefit of one type or another (Shapiro, 2014). Furthermore, gamification is a facet of several educational initiatives from organizations like the Bill and Melinda Gates Foundation, Electronic Arts, and the Joan Ganz Cooney Center. Research is catching up

to what many educators have already intuited, but "it depends on the particular games and how they are used" (Shapiro, 2014). In short, the way games are used influences their effectiveness in the classroom, and these variations in implementation are explored in detail in *Play to Learn*.

CHAPTER IV: PRODUCTION NARRATIVE

Target Audience

Freshman-level and sophomore-level collegiate instructors, especially those that teach core subjects at the University of Houston, are the target audience for several reasons. Firstly, gamification addresses many of the problems these instructors experience, like large classroom sizes, long-term recall, and low motivation. For example, video games often can give real-time assessment tools that tell the instructor which students are falling behind (Kapp, 2017). Outside the assessment framework, didactic storytelling can provide emotional context, which improves concept retention and memory (Gallagher, 2011). Storytelling also relieves the cognitive overload that commonly occurs with freshman- and sophomore-level college courses filled with too many learning objectives (Jacobs, 2017). Secondly, gamification motivates through two complementary factors: community and autonomy. It generates a sense of community because games are most effective in small groups that compete, and it generates a sense of autonomy because the player has choices within the game. Because this target audience is also my workplace, it is an audience that I am familiar with and can quickly obtain feedback. Lastly, collegiate professors have more freedom in their classroom, allowing for experimentation with gamification ideas.

The reason for targeting freshman and sophomore core courses, as opposed to junior- or senior-level courses, is because concepts become more discipline-specific as the courses progress. Real-world experience often is more effective than gamification in these later stages of learning. Though the target audience provided guidelines for stylistic choices in the film, this does not preclude other interested audiences.

A quick acquaintance with this group of freshman and sophomore undergraduate instructors provides some guidelines for core features of the film. This group is often

busy and may have limited time to explore new teaching methodologies. Thus, the film

is only fifteen minutes long and takes an overview or introductory approach to the

subject. This approach allows the target group to further explore the details of the subject

on their own and on their own time in an a la carte fashion, as they deem appropriate. In

this group, their subject matter expertise is juxtaposed with limited exposure to

innovative teaching methodologies and technologies. In other words, they are likely to

teach in the same way they were taught. Being in academia, professors think deeply and

critically, and they are thus more likely to pursue a teaching methodology with relevant

evidence from a variety of expert sources.

Dissemination Strategies

To ensure that people watch a film, distribution is an essential consideration of

every film project. Several lines of distribution and dissemination are planned for *Play to

Learn*. The film may be disseminated through several University of Houston

organizations, including the Instruction@UH blog, Coog TV, and so forth. The film will

be submitted for their review for possible distribution or broadcasting. We will also

utilize several social media channels, including Facebook and YouTube. The

interviewees will receive a copy of the film and may distribute it through word of mouth.

The strategy of targeting University of Houston professors, specifically, is practical; it

encourages and supplies multiple channels of distribution with little or no cost. These

points of distribution should be enough to obtain a substantial audience.

<div align="center">

Structure and Style

</div>

Play to Learn is a fifteen-minute film in three acts with various components

guiding its structure, including the following: a framework story with an embedded

educational documentary, the incorporation of game-like elements throughout the film,

<div align="center">

10

</div>

the use of nostalgia, and a not overly promotional but decidedly positive tone. These components work together to guide the overall construction of the film.

This film uses the literary device of a frame story. The frame story comprises acts one and two, while act three contains the informational content about gamification. The frame story tells the tale of Professor Snyder, hereafter to be referred to as the Professor, who learns about gamification for the first time along with the viewer. The use of a frame story is well-established in film; it can be found in such films as *Forrest Gump*, *The Princess Bride*, and *Titanic*. The use of this device had two purposes: (1) to connect a traditional educational documentary to a fictional story that drives the film's documentary content, and (2) to provide a variety of styles to keep the viewers' interest throughout the length of the film while still effectively conveying the material.

The Professor's story begins in act one, the first part of the frame story, which establishes the setting and introduces the main character. This act begins with the professor getting ready for class and ends with students preparing for class. Act two starts with the Professor calling the roll and segues into a generic lecture. While he is teaching, many of the students are shown to be distracted or sleepy. Following a well-known story arc, this student apathy and disengagement is the crisis that the main character must overcome. The audience may connect with the main character, as they may have faced similar circumstances, illustrating the need for the subject of the documentary: gamification. The Professor then shows the class an old educational film. As the class watches the film, the Professor falls asleep, and thus begins act three. The Professor wakes up confused, his students having disappeared. As the Professor navigates a waking dream, he watches the film on the screen, which is a documentary about gamification. Thus, the film within the film begins.

The film within the frame story is a mix of five components: an interview with Dan White of Filament Games, an interview with Professor Steven Sutherland of University of Houston – Clear Lake, an interview with Rick Brennan of Histrionix Learning Company, clips from old educational films, and voice-over from a narrator.

Each of the interviews in act three cut in and out from one another, with each interview providing unique perspectives and backgrounds. Dan White strongly advocates for the use of games. He brings a strong background in game development, but he also has a long history of trying to convince schools to use his games in their classrooms. Rick Brennan, a former history teacher, tells the story of how he built a game around his history class, and Steven Sutherland uses his applied research to give broad tips for using gamification in the classroom. Gamification is too complex and multi-faceted for any one individual perspective to contain and, thus, a variety of viewpoints were needed. These viewpoints, which highlight aspects of the topic, combine to create a well-fleshed-out educational documentary introducing the subject of gamification. The film ends with the concluding clips from the original film that the Professor was showing the class during act two, bringing the film full circle.

The film as a whole utilizes two aspects of gamification: storytelling and playfulness (Sutherland, personal communication, March 5, 2017). A fictional story is used to engage the viewer. As Rabinger (2003) states, "You need an induction process that will bring anxiety levels down and build an ensemble able to be playful in its seriousness" (p. 162). The use of narrative gives the audience a memorable connection to the informational content through the main character, the Professor. The viewer is encouraged to see themselves in the main character, just as games use avatars to allow the player to experience successes and failures without any real-life consequences (Kapp, 2017). As the Professor learns about gamification, so too does the viewer.

Despite a strong framework story, more was needed to engage the viewer and keep their interest. Therefore, the film incorporated nostalgia. In act three, clips of older educational films deliberately break the flow of thought in a literal and figurative way. They break the visual and audible aspects of the film by abruptly transitioning in and out from the current scene. The cuts selected from the older films act as a commentary on the scene and therefore serve as a figurative break. They are also a continuation of the story that Professor Snyder is dreaming and that his dream is pulling ideas from the waking world. This use of nostalgia has several advantages. In addition to providing a vast library of public domain content to use, nostalgia also ties the ideas of gamification to the traditional teaching practices on which it is based, such as the tried-and-true teaching practice of scaffolding. It also lends itself to the well-established practice of montage. A typical example of montages being used to create associations are political attack advertisements, wherein footage of prisons might be used to create links between a candidate and criminal behavior. While this film's use of older educational films is not precisely a montage, it is a stylistic exploration based on that technique. Lastly, the use of the older films provides another voice commenting on the material from a different point in time, adding to the timelessness of the content, as well as the synergistic aims of gamification and traditional educational practices. See Appendix A for a list of older educational films used in *Play to Learn*.

The use of archive films did break from a well-established technique. Films usually use nostalgic content that goes back approximately thirty years. This is seen in such visual media as *Back to the Future*, *Stranger Things*, and *Ready Player One*. *Play to Learn* breaks this convention by pulling from films much older than this. This choice was due to the aforementioned advantages addressed in the previous paragraph. It remains to be seen if this choice was an effective one.

13

Another stylistic choice was deciding to temper a promotional attitude towards the topic in favor of a more educational approach. The backfire effect and possible negative preconceptions about games were catalysts for this choice. The backfire effect is a psychological phenomenon in which correcting false beliefs with evidence has the opposite effect than the one intended (Peter & Koch, 2015). If the film had been too persuasive, those who have negative preconceptions about games might come away with hardened beliefs, which opposes the film's objective. Thus, rather than being polemical, the film's goal is to retain a curious attitude from a neutral point of view. The film's structure, including its use of frame story and documentary styles, the incorporation of nostalgia, and the neutral but curious tone combine to achieve its goals: teaching the viewer about the purposes and uses of gamification in the learning process while connecting the viewer to the content in a personal way.

Use of Interviews and Voice-Over

The interview is a ubiquitous tool in documentary filmmaking. It provides direct accounts of the film's subject. While most documentaries use interviews as testimonies to move the story forward, the fictional story made this impossible, as there is no personal story for individuals to comment upon. However, *Play to Learn*'s interviews are intended to meet the typical goals of displaying authenticity and credibility.

An academic audience expects credible sources, but the medium of film has a weakness in this area. While a film has the technical possibility of showing an animated or still frame of written material, this would be visually uninteresting and includes nothing regarding audio. Expert interviews are well-established, acceptable, and appropriate.

Supplementing the interview content is a voice-over track performed by Phil Snyder, not to be confused with the fictional character of the Professor. Snyder, a

14

professional voice actor, provided the voice of the main character speaking to himself through the dream. Mimicking the style of the old educational films, the voice-over bridges the interviews with each other and with the historical footage. The voice-over aims to act as a guide to the viewer across all the sources of information.

Imagery

A variety of stylistic choices were made regarding the imagery to enhance the film's visual appeal. One decision was the use of macro photography, which is the technique of making items appear larger than they are in the real world. It is used primarily at the beginning of the film to define the setting and give insights into the main character through utilizing the environment. This technique is known as environmental storytelling. By focusing the shots on item details like the name on a diploma or the logo on a door poster, the main character is defined and the setting is established. Focusing on the University of Houston logo is also an example of this technique. The logo helps to build the setting and relate to the target audience, the professors of the University of Houston.

Due to optics, the macro photography naturally lends itself to having a shallow depth of field. A shallow depth of field is where only a small plane of the image is in focus, as shown in Figure 1. This allows the frame to direct the viewer's attention to important details in an otherwise busy and complicated frame. A rack focus technique was also used to direct the viewer's eye, as shown in Figure 2. The shallow depth of field creates a sense of curiosity and mystery.

Figure 1
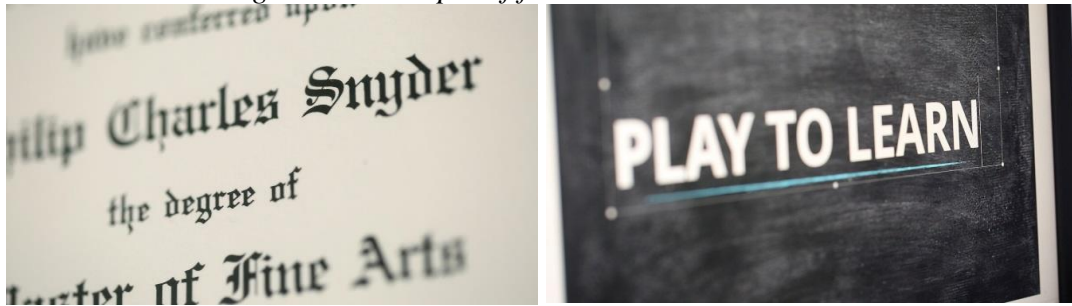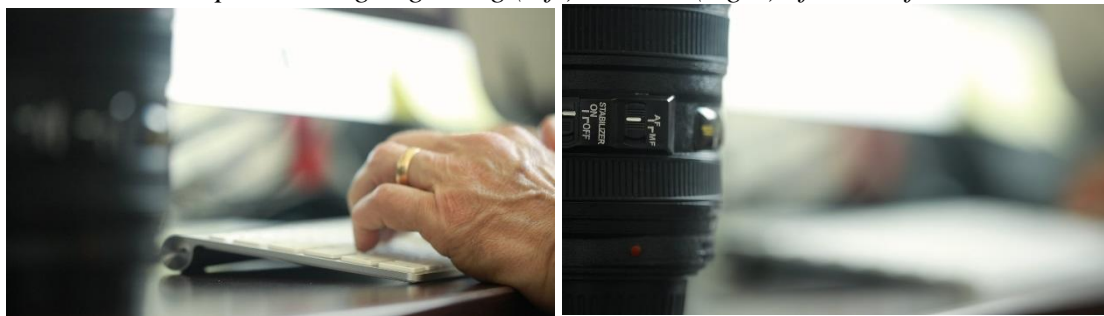*Movie stills showing a shallow depth of field*

Figure 2
Movie still example showing beginning (left) and end (right) of a rack focus

One important section of the film is the first part of act two, in which Professor Snyder is shown lecturing bored and sleepy students. This scene, modeled after a scene in *Ferris Bueller's Day Off* by Paramount Pictures, shows students falling asleep to Ben Stein's high-school instruction, with some significant similarities and differences. In *Ferris Bueller's Day Off,* all the students are shown from a front-on perspective. Due to technical limitations that will be discussed later, front-on framing of the scene in *Play to Learn* was not possible. Other aspects of *Ferris Bueller's Day Off*, however, like the rhythm of the cuts and the focus of the visuals on the students, are mimicked in *Play to Learn.* (Hughes, 1986)

The coffee cup (Figure 3) is a recurring motif appearing five times in the introduction. Not only does this motif create an identifying element throughout the shallow depth of field shots, but it also symbolizes preparation and beginnings. For

example, people tend to associate coffee with the beginning of the day, as opposed to the end of the workday. Additionally, as the coffee cup resembles a camera lens, it is also a small nod towards the fact that the actor playing the Professor is, in reality, a film instructor.

Figure 3
Movie still showing a coffee cup as a motif

The use of symmetry was a deliberate choice, as well. In filmmaking, symmetry draws attention to the center and most important item of the frame – in this case, the main character. In contrast, the interviews were filmed asymmetrically. The main character was filmed symmetrically because he was deemed more important than the interviewees. His visible emotions created more memorable scenes than the interviews, and therefore, drawing primary attention to the Professor creates a more memorable film.

Music

Music plays an integral role in the themes of the film. To create the feeling of old video games, furthering the nostalgia, the 8-bit music of Popskyy is used throughout the film.

This highly digitized sound, reminiscent of late 1980s video games, contrasts heavily with the sound environment of the nostalgic, older films. It was a deliberate choice to have the music fade out during any cuts to the older films, so as not to appear

anachronistic. Popskyy's music was also selected for copyright reasons, as the artist has given permission for anyone who purchases his music to use it for any purpose.

The visuals were not strong enough by themselves to bridge the scenes around the Professor falling asleep. Therefore, Popskyy's music was remixed with short audio clips from the older films as well as the voice-over. It brings the audio elements together into a mash-up, blurring the lines between the two audio environments.

Production and Editing

Various effects and techniques were used in production and editing to create seamless visuals that would not have been otherwise possible. Following are explanations of some of the choices made for the film. During the scenes in which the Professor and his class were watching an older educational film, a day for night technique was used. This technique involves filming a fully-lit scene and darkening the frames during post-production, as shown in Figure 4.

Figure 4
Before (left) and after (right) edits in the day for night technique
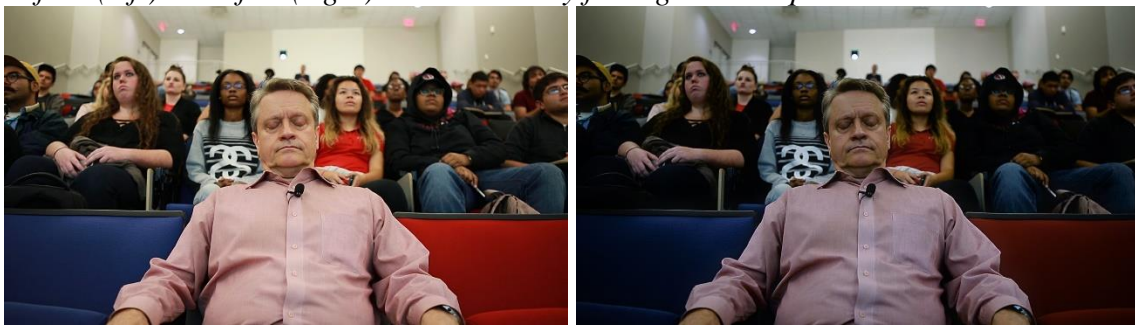
This fully-lit scene provided more light and gave better control over the depth of field, allowing the main character to be entirely in focus. Additionally, the day for night technique prevented drawbacks associated with filming in low-light situations, which causes noisy shots and makes autofocus problematic. The day for night technique was essential to creating the shots needed for these scenes.

18

Each interview also had its unique production considerations. Because Dan

White is located in Michigan, his interview was conducted via Skype, a teleconferencing

application, with the audio, lighting, and filming conducted by Josh Bartels of Filament

Games. The footage was then transferred via the internet to be included in the film. The

video conferencing did not allow as much flexibility with controlling the parameters of

the frame. Steven Sutherland's interview, however, was based on the educational

documentary, *The Secret Rules of Modern Living: Algorithms* (*SRML*). This

documentary, from which the shot was modeled, took a standard approach to the framing,

placing the interviewee on the left or right third of the frame with the person angled

towards the opposite side. In Steven Sutherland's case, the interview was shot in his

research lab with many environmental details included in the frame to create context.

One difference to be noted, however, was that the camera was positioned low compared

to the scene from *SRML*, as shown in Figure 5. Both interviews are an environmental

portrait framed as a medium shot to provide variety in the composition. A medium shot

is one where the person is filmed from a medium distance with the frame being cut off

roughly at the waist. Finally, Rick Brennan's interview was similar to that of

Sutherland's, with the exception that he was framed using a medium close-up to vary the

visual composition and differentiate the three interviews (Figure 6).

Figure 5
Interview composition comparison between The Secret Rules of Modern Living:
*Algorithms (left) and Play to Learn (right) (Briggs, 2015)*

Figure 6
Still frame from Rick Brennan's interview showing a medium close-up composition

Another approach the film uses to solve production issues is mixing real classroom filming with staged filming. For example, in a staged setting, eliciting genuine reactions from students, who are not trained actors, is not possible. However, when filmed in a real classroom with a telephoto lens, allowing for non-intrusive filming, their responses are more natural. As filming could not occur in front of the teacher lecturing, filming from a front-on perspective was not possible. These telephoto shots were mixed with a staged lecture and scripted audio from the Professor. Filmed students provided written and verbal permission for their footage to be used.

Other examples of the approach of mixing real and staged footage are the shots in act two and three, in which the film is being viewed on a projector screen. The screen is blank, with the film superimposed onto the frame, as shown in Figure 7. Without this approach, these acts would not have had the emotional impact that enhances the film.

Figure 7
Still frames showing the layering of the film
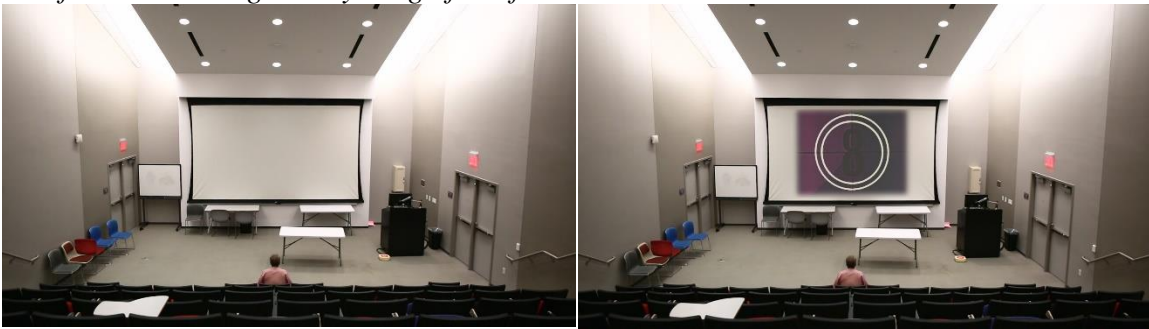
An issue that became apparent during filming on set was the lack of a finalized plan and script. To mitigate this issue, each scene was filmed several times with small details altered in each take. For example, Phil Snyder was filmed with multiple reactions showcasing different emotions, like agreement, disagreement, etc. Also, many of these shots were designed to be generic and could be applied to various directions that the rough script had the potential of progressing towards.

Some digital effects and transitions that were applied in post-production came from the special effects library of Red Giant's Universe 2.2. These effects allowed for each interview to be quickly modified to give the appearance as though they were recorded with a film camera, as shown in Figure 8. These effects were applied for three reasons. The first was that Red Giant's transitions could hide and smooth over necessary abrupt cuts in the interviews. These abrupt cuts are necessary because interviews contain non-verbal vocal noises, such as coughs and filler words, that need to be removed to keep the interviews flowing smoothly. Secondly, these heavily stylized effects were applied to give contrast to each interview and shots of Professor Snyder in the empty classroom. Lastly, these effects were applied to blend the older educational clips and the new footage. This combination of effects and transitions holds the diverse styles of the film together.

Figure 8
Still frames showing the before (left) and after (right) applying the "film" look effect

CHAPTER V: CONCLUSION

Making *Play to Learn* was a profound learning process that achieved several important objectives. In the same way a student would write a formal essay, I have explored the use of gamification through the medium of film. Within this exploration, I learned how to film interviews, how to plan a movie, and how to tell a good story. Filming the interviews required planning, communication, and, most of all, practice. The experience of shooting the interviews was a lesson unto itself. I feel like my interviewing skills have vastly improved. Planning the film was a trying task. The film went through several iterations during the later stages, requiring many time-consuming repairs and duplicate work. This project was not planned as it should have been – with storyboards, scripts, schedules, and shot lists – and the abscence of these essential planning tools caused numerous problems. Using these tools would have made the filmmaking process much more efficient and would have improved the final product. Most of all, I have become a better storyteller and will use this skill to tremendous effect in my future classrooms. This project was a valuable experience that has taught me much about filmmaking and instruction.

My film evolved from an overall vision guided by a plethora of stylistic choices, ideas, and techniques that merged into a unique film experience. I drew from a kaleidoscope of sources, varying from online educational courses to popular films. The result is a concise documentary aimed at college professors. I hope that this film will encourage educators to rethink their current modes of instruction and flatten the application curve when applying games to their classrooms. Moreover, this experimental film was an exploration of creative filmmaking. The next step is to distribute the movie, gauge reactions, and begin my next film. To view *Play to Learn*, follow the link in Appendix B.

REFERENCES

Briggs, D. (Director). (2015). *The secret rules of modern living: Algorithms* [Video file].

    UK: BBC Studios. Retrieved April 15, 2018 from

    https://www.netflix.com/watch/80095881?trackId=13752289&tctx=0,0,1101d2ae

    e72319609d08830977921706f0806771:67a5855ef949ac402fb1ac7f6b272c7cde5

    7abc1%2C%2C

Gallagher, K. M. (2011). In search of a theoretical basis for storytelling in education

    research: Story as method. *International Journal of Research & Method in*

    Education, 34(1), 49-61. doi:10.1080/1743727x.2011.552308

Hughes, J. (Director). (1986). *Ferris Bueller's day off* [Motion picture on DVD]. USA:

    Paramount Pictures.

Jacobs, S. (2017, July 12). Five psychological principles fueling gamification. *Learning*

    Solutions Magazine. Retrieved April 15, 2018 from

    https://www.learningsolutionsmag.com/articles/2381/five-psychological-

    principles-fueling-gamification

Kapp, K. (2017, May 11). Gamification for interactive learning. Retrieved January 15,

    2018, from https://www.lynda.com/course-tutorials/Gamification-Interactive-

    Learning/573400-2.html

Levy, N. (Director). (1997). *The language master* [Video file]. UK: BBC Studios.

    Retrieved June 1, 2018, from https://www.youtube.com/watch?v=O0w_uYPAQic

Peter, C., & Koch, T. (2015). When debunking scientific myths fails (and when it does

    not). *Science Communication, 38*(1). doi:10.1177/1075547015613523

Pittser, B. (2016, July 27). Planet Mechanic classroom study. *Filament Games*. Retrieved

    April 19, 2018, from https://www.filamentgames.com/blog/planet-mechanic-

    classroom-study

Rabiger, M. (2003). *Directing: Film techniques and aesthetics*. Burlington, MA: Focal
    Press.

Schwartz, K. (2014, November 24). Some struggles teachers face using games in the
    classroom. *KQED News*. Retrieved April 16, 2018 from
    https://ww2.kqed.org/mindshift/2014/11/24/some-struggles-teachers-face-using-
    games-in-the-classroom/

Shapiro, J. (2014, June 13). Benefits of gaming: What research shows. *KQED News*.
    Retrieved April 17, 2018 from https://www.kqed.org/mindshift/36269/benefits-of-
    gaming-what-research-shows

Smith, D. F. (2015, June 15). Report: Is it game over for gamification? *EdTech
    Magazine*. Retrieved October 16, 2017 from
    https://edtechmagazine.com/k12/article/2015/06/report-it-game-over-
    gamification#BH5wKqmvrr73ymdC.16

Weinschenk, S. M. (2016). Games can improve perceptual learning. *100 more things
    every designer needs to know about people* (pp. 239-240). Berkeley, CA: New
    Riders.

Wouters, P., van Nimwegen, C., van Oostendorp, H., & van der Spek, E. D. (2013). A
    meta-analysis of the cognitive and motivational effects of serious games. *Journal
    of Educational Psychology, 105*(2), 249-265. doi: 10.1037/a0031311

APPENDIX A: LIST OF OLD FILMS USED

All films can be viewed through https://archive.org/.

- Education in America: Twentieth Century Developments (1958)

- Education in America (1958)

- The Futurists (1967)

- Motivation and Reward in Learning (1948)

- Visual Perception (1959)

- Philosophies of Education: Classical Realist Approach to Education (1961)

- Universal Gravitation (1960)

- Radio and Television (1940)

- The Human Brain (1955)

- The Child of the Future (1966)

APPENDIX B: VIDEO LINK

Play to Learn: https://vimeo.com/265610348/537517b8d2