

KILLING THEM SOFTLY: VIRTUAL REALITY TRAINING IN  
PROJECT TERMINATION

by

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## **Abstract**

### **KILLING THEM SOFTLY: VIRTUAL REALITY TRAINING IN PROJECT TERMINATION**

Master of Digital Media, 2020

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The use of virtual reality (VR) as an innovative learning tool in higher education has been rising steadily, as being actively engaged in a learning activity has repeatedly been shown to be beneficial for learning (Price et al. 2003). This major research project explores the potential use of VR for ‘soft skills’ training by addressing two main questions: 1) How can we train individuals for complex work environments without exposing vulnerable students to potentially harmful situations?; and 2) how can we create these environments with a role-player simulation? This research paper builds on how VR combined with digital storytelling can be used to build on communication skills training. It suggests that by creating a prototype for an impactful VR experience students can improve their communication skills, and demonstrate higher levels of goal completion required to successfully bring a project to fruition in the 21st-century creative workplace. Mirroring real-world engagements, users assume the role of the manager while working through these virtual challenges in three distinct steps; preparation, delivery, and transition. This novel research suggests that there is a way to effectively combine traditional role-playing techniques while adhering to the new digital standards.

**Keywords:** Virtual Reality, Innovative Education, Communication Skills, Project Termination, Creativity, Simulation, Gaming, Immersive Environment.

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## Table of Contents

Author's Declaration .....	ii
Abstract .....	iii
Acknowledgments.....	iv
Table of Contents .....	v
List of Figures .....	vii
Introduction .....	1
Literature Review .....	3
Virtual Reality Application .....	3
Virtual Reality in Education .....	3
Phenomenology and Pedagogy.....	4
Communicating negative feedback & Project termination.....	4
Methodology .....	6
Problem identification .....	6
Design & Development .....	7
Script to screen .....	8
Introduction .....	11
Phase one .....	12
Phase two .....	14
Phase three .....	16

Prototyping Version One .....	17
Evaluation .....	23
Desired Learning outcomes .....	23
Informal Data Collection - Post Simulation .....	24
Where can the simulation be used? .....	26
Conclusion .....	26
Implications for future research .....	26
Limitations .....	28
Summary .....	29
Works Cited .....	31

## **List of Figures**

Figure A - Script to Screen .....	10
I - VI; Screen Captures of the brochure package that was sent out to cast and crew for the July 7th filming date at the DMZ. It includes; what the project is, location & directions, cast & crew roles, schedule, Contact information & FAQ answers	
Figure B - Phase One; Preparation .....	13
Concept art of Phase One, question two (right) and Screencap of simulation (left) where the user must decide what written materials are important for the delivery.	
Figure C - Prototyping Version 1; Wireframing Charts .....	18-20
I - VIII; Screen Capture of the wireframing chart used for designing the level system of the simulation. This wireframe was created using diagrams.net with google drive.	

## **Introduction**

The use of virtual reality (VR) as an innovative educational tool in higher learning has been rising steadily, research has shown that active forms of learning such as virtual reality has repeatedly been shown to be beneficial for learning (Price et al. 2003). As VR becomes more integrated into the educational system, specifically in-person classroom activities, it is important to acknowledge the significance of the technological progress in education.. Technology plays a significant role in the life of twenty-first-century adolescents (Schuck & Aubusson, 2010) especially as more education has moved to digital in 2020 than any other year prior. Although Schuck & Aubusson (2010) argue that it is difficult to change the current formats, higher education has been making moves towards deeper technological integration within learning.

The COVID-19 pandemic has created a monumental shift in education delivery which has forced educators to utilize digital mediums. VR offers students the opportunity to participate in learning activities remotely and safely, while still engaging in critical thinking in an immersive environment. ‘KILLING THEM SOFTLY’ (this MRP) was originally conceptualized before the COVID-19 pandemic but it has since shifted focus to adhere to new demands and safety regulations taking hold of the new opportunities to expand in a more digital future.

The purpose of the project was to develop workplace communication and conflict resolution skills for students entering the workforce. These skills are vital to learning so that students can be in a safe space to learn about workplace etiquette, interpersonal risks, and interacting with co-workers and supervisors which are also known as soft skills. This research has shown that



when it comes to “soft” skills the current approaches being used, such as case studies and role play, are not close to real-life as the simulated environments. The current soft skill educational tools are noticeably artificial when compared to techniques used in hard skill training for occupations such as physicians and pilots. Yet, the risks are just as real. What makes this different from typical role-playing within the classroom is that those who are participating in the activity will be given little preparation beforehand much like the manager would in the scenario. Potential users will be experiencing a real scenario in a “real” workplace and learn how to react at the moment, and learn what they can and cannot say.

This project explores the potential use of VR for ‘soft skills’ training in the classroom by addressing two main questions: 1) How can we train individuals for complex work environments without exposing students to potentially harmful situations?; and 2) how can we create these environments with a role-player simulation? These two questions are explored in this creative project that builds on how VR combined with digital storytelling can be used to build on communication skills training. Working from an existing analog pedagogical case study that touches on terminating (killing) projects (Dubois, 2018), the goal was to create a prototype for an impactful VR experience and to test this approach to determine its value in a higher education classroom setting. After exiting the simulation, participants took part in an informal debrief and provided testimonials to understand whether the original learning goals were still achieved.

## **Literature Review**

### *Virtual Reality Applications*

Virtual Reality (VR) is a technology in which users are able to create immersive experiences. A virtual reality experience (VRE) is composed of a set of qualities that make the experience more real. (Perez-Marcos, 2018) These qualities consist of immersion, interaction, and illusion. Despite the numerous advantages, VR was not extensively researched until the late 2000s because of its high cost, immature technique, and lack of supplementary teaching content. In early 2014, Google launched Google Cardboard—a simple VR viewer consisting of a piece of cardboard and optical lenses. This new device has reduced the unfamiliarity with the technology, enabling the public to experience a simple form of VR by using their smartphones (Sun et. al, 2019) With increased accessibility, VR is not only used for looking at imagery but used to create unique interactive experiences. The technology has several applications in the 21st-century, including but not limited to movies, games, therapy, modern art, and education.

### *Virtual Reality & Education*

That said, the use of VR in a classroom environment is a relatively new territory. All manner of physical objects can potentially be used combined and digitally enhanced in various ways providing intriguing behaviors and unexpected outcomes (Price et al, 2003). Cooper et al, (2003) found that 97% of individuals were willing to use VR in a classroom if presented with the opportunity. When engaging in VR-related activities it was found that feelings of enthusiasm and impressiveness are key points for the activation of the cognitive process and that it is worthwhile investigating how a medium provoking such feelings in educational settings (Mikropoulos et

al.1998). VR allows learners to interact with virtual objects at their own pace and learn through a constructivist approach, encouraging active participation rather than passivity. Overall, it has the potential to lead learners to new discoveries, to motivate and excite them modeling the real world by requiring interaction as being part of the environment (Papanastasiou et. al, 2019).

### *Phenomenology and Pedagogy*

Phenomenology can be defined as a perspective and research methodology aimed at understanding the phenomenon of human experience and how that influences the interaction between individuals. Pedagogy is described as a way of acquiring new information and using it later when necessary instead of learning over a long period of time (Csibra & Gergely, 2009). It is understood as a social learning mechanism and an adaptive behavior trait which has influence over how individuals communicate. It is vital to understand both of these learning and communication concepts when understanding the typical day to day interactions in the workplace and how these experiences influence decision making. While there are many different branches of phenomenology, this project mobilizes hermeneutic phenomenology, a research methodology useful for describing human experience of caring, healing, and wholeness in relation to historical, social, and political forces that shape meanings of wellness, illness, and personhood (Wojnar, 2007). This is consistent with how a manager can deliver bad news all the while ensuring that the team member's needs are met and dealing with resulting consequences.

### *Communicating Bad News & Project Termination*

The delivery of news from a manager that is received negatively by subordinates happens commonly in the workplace. Bies (2013) suggests that the process of delivering bad news

involves three different but connected phases of activities: the preparation, delivery, and transition. As such, this MRP uses the framework created by Bies and applies it specifically to an example of project termination. The preparation phase will cover a series of activities dedicated to how a manager could prepare themselves for delivering this type of news, which given the nature of the work in the creative industry, is likely to occur. Indeed, these industries are typically organized around projects, which implies dividing up the work into distinct, complex tasks limited in time (Lindgren et. al, 2014). Naturally, not all projects reach completion for a range of reasons. In addition, employees in the creative industries are said to be more emotionally invested, meaning that anticipating and accounting for their reaction is important to the announcement effectiveness. The second phase of the simulation follows Bies' outline and focuses on the delivery of the news. The focus of this phase is the where, when, and how you deliver the news to your team. Nunn (2019) argues that managers ought to arrange a private, quiet place without interruptions and to provide adequate seating for all. The final phase of the simulation refers to all of the activities undertaken after the delivery of bad news (Bies, 2013). It focuses on the reassignment of employees and dealing with potential resignations, as well as on having open and honest conversations with everyone affected. If employees are not aware of what is going on and of the manager's intentions, it may result in turnover, increased stress, uncertainty, and feelings of inequity (Signh, 1998). Organizations have been encouraged to maintain relationships with existing employees (Kulik et. al, 2014). This is why it is important for the user to understand how these essential conversations should be navigated.

In addition, something to consider when delivering bad news is the innovator resilience potential (IRP), which is the “potential for future innovative functioning” and coping with future setbacks after having experienced a professional setback. (Moenkemeyer et. al 2012) Meaning that in the dialogue between manager and team members, there is a structure needed to support the staff's outcome expectancy, self-efficiency, optimism, hope, risk propensity and self-esteem. This means that the dialogue must hit these seven points to assure that their emotional needs in the current situation are met and they can feel assured in the plan being developed. Previous research has indicated that a narrative is a more effective means for a leader to communicate these issues with his or her constituency, the present research, focussed on narrative use to deliver bad news, seems to indicate a more nuanced picture of narrative use by leaders. Carriger (2013) also found that a narrative was a more effective means of communicating corporate culture than a list of facts and figures. A list of facts and figures combined with a narrative was found to be the most effective by means of communicating corporate strategy than a bullet-point list. Research also indicates that a narrative may lead to a more direct response or understanding (Carriger 2013). These factors point towards the narrative-based style of delivering the news, rather than favoring the fact-based outcome. While the latter is truthful and transparent with employees, it fails to account for the emotional needs of the team members.

## **Methodology**

### *Background and Problem identification*

In 2018, Dr. Louis-Etienne Dubois (School of Creative Industries, Ryerson University) developed a pedagogical case study on the termination of projects in the video game industry. This stems from industry respondents on the prevalence of such occurrences, and on the

seemingly lack of training resources to help prepare for them. This case study has since been used in the training of creative industries undergraduate students at Ryerson University.

At the same time, Dr. Dubois was also in the process of redeveloping an undergraduate level course (CRI 800) that seeks to prepare students for a range of entry-level management positions in the creative industries. In the first two installments of the course 2017 and 2018, students reported<sup>1</sup> some interest in the course material, but also difficulties in retaining information and dissatisfaction in both the teaching and evaluation format. As such, changes were made to the course, including the gamification of the material, and the introduction of a “real-life” simulation that now spans the entire semester. While the student’s response has been better, the opportunity to go even further, especially at a time where in-person training is no longer an option, has been the topic of ongoing discussions ever since this MRP was launched.

Since the majority of higher education learning has moved online and will continue to do so for the foreseeable future, it is imperative for educators to explore innovative ways to engage their students. A preliminary literature review highlighted the potential and the need for more accessible educational VR content. In reaction to these needs, this MRP has focused on developing and testing a VR simulation specifically designed for management education.

### *Design & Development*

Putting together the simulation consisted of three main parts; 1) designing the phases of the simulation, moderating the case study script to suitable for a screen reenactment and ; 2)

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<sup>1</sup> Dr. Dubois being the supervisor of this MRP, he graciously shared his “Faculty Course Survey” for CRI 800.

creating a prototype of the simulation; and 3) conducting informal data gathering post-simulation to be used for prototype iterations in the future which will be discussed later.

### *Script to Screen*

The sudden closure of Ryerson's campus in response to the COVID-19 pandemic posed serious challenges to the completion of this MRP. Production was originally planned to be behind at the beginning of March, with an initial prototype ready to be shown at the beginning of April. There would have been the opportunity for several prototypes to be designed and the iteration differences discussed in this paper based on feedback from. Once the campus had closed there was no longer the opportunity to film on campus or use equipment needed to film. An alternate plan was proposed to create a more web-based activity in which the simulation would be based on a scenario in which a project was terminated during the pandemic and the news had to be delivered remotely from the team. While this would have been an interesting topic to divulge, there was worry about the lack of written theoretical work that would be needed to serve as the foundation for a new script. Dr. Dubious (the supervisor of this project) was able to secure a 360 camera from his office so that the filming could resume. Once the technical equipment was obtained, the next challenge was finding actors to play the parts of these characters. There were four essential characters needed for the simulation; Luke, Danielle, Trevor, and Ryan. The original plan included 15 other people to serve as background actors to help make the simulation more realistic to an actual work environment. However, in order to comply with guidelines issued by the government of Ontario, the cast was reduced to essential personnel only. The Ryerson Faculty of Communication and Design (FCAD) research space, The Catalyst, was the ideal location for filming. Not only was it set up like a modernized studio

space, but also the home of Dr. Dubious faculty office. With that space already in mind, the next task was finding actors willing to donate their time. At the beginning of July, the space was now allowed to be used for filming, and the date to the film was set at July 10th. The cast needed to be scaled down from the original group of almost twenty to no more than ten people. When learning that the cast was going to include non-Ryerson university students the space had become unavailable, which meant within the week before the filming date a new location needed to be secured. Thanks to the MDM's affiliation with the Ryerson Digital Media Zone (DMZ), MDM program director William Carter secured a space connected to his own personal office. In order to film within this space the production date was moved to earlier that week on July 7th. Once the cast, crew, location and date were formally established, a package was sent out (Figure A) outlining the details of the filming day along with personalized individual scripts for each actor. The cast and crew consisted of one other member of the MDM cohort to play Danielle, while the rest were portrayed by family members in order to keep the social circle and risk small. Although it was relatively easy to pull this cast together, it did not meet the hopes of a diverse cast in terms of ethnicity, something that will be addressed when completing future iterations of this simulation.



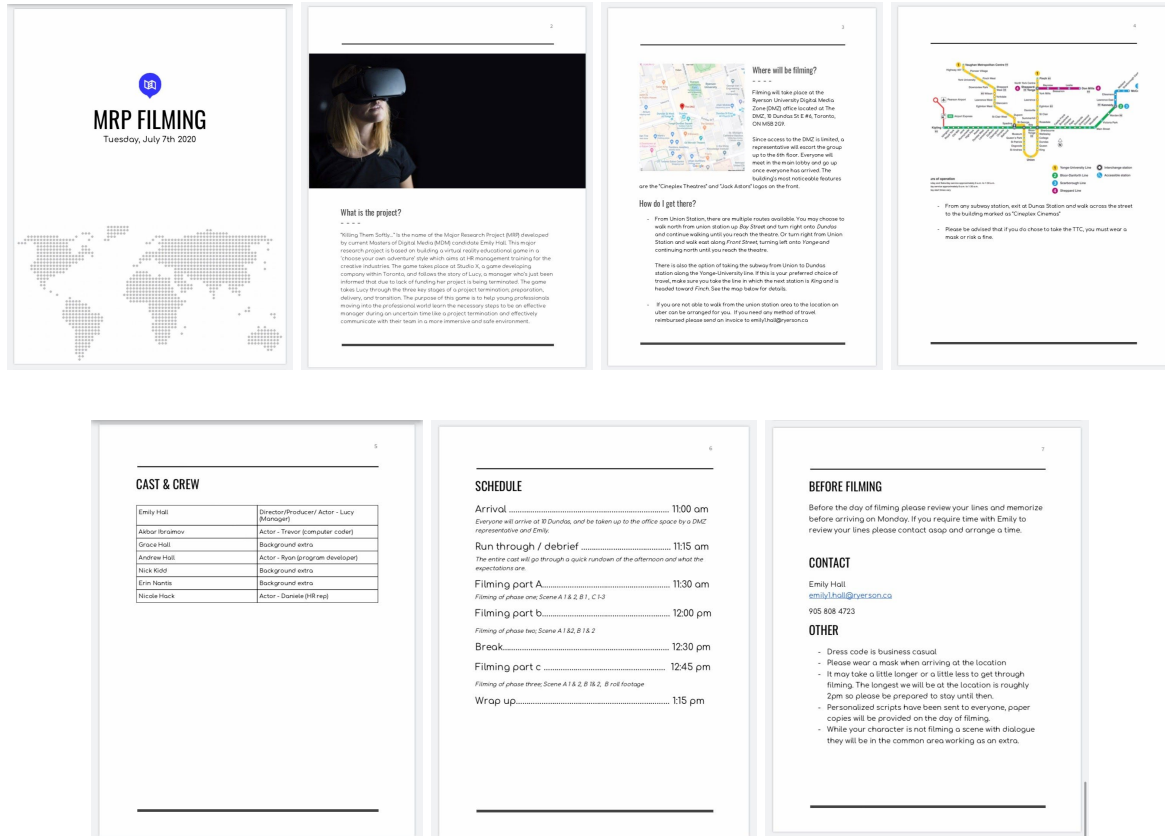


Figure A I-VII. Screen Captures of the brochure package that was sent out to cast and crew for filming. It includes; what the project is, location & directions, cast & crew roles, schedule, Contact information & FAQ answers

Many aspects of the original case study are reflected within the simulation. For instance, the phases of the process mirror the assignment questions built around a critical analysis of a common management task, while also addressing the general question of ‘how can the studio better help Luke and Danielle in this situation’ with the simulation itself. Phase one of the simulation answered the question of ‘how should Luke communicate this with his team?’. Phase two covered the question of ‘how should Daniele handle the emotional reaction of the team?’, but pivoting slightly to allow Luke’s character to prepare his delivery in a way that will anticipate the emotional needs of his team. Finally, phase three reflected ‘how can Luke ensure

the knowledge and learnings from the project are not lost' by engaging in sessions with team members in post-delivery meetings covering reassignments and resignations.

Dr. Dubois' case study also included profiles for all of the characters involved in the video game studio setting. Luke, whose name was later changed to Lucy as the project manager, and the one who had to deliver the project termination news to her team. Danielle, a Human Resources (HR) representative at the video game studio. Two project coders Trevor and Ryan, who have more key interaction roles within the studio as team members. Stan the Vice President of the studio, who makes the executive decision and is only named not seen in the simulation. Finally, some extra team members who are unnamed but necessary for the simulation to create a more realistic team dynamic. While there was the framework for this simulation provided there was the task of taking the questions and translating them into three distinct phases and developing them further into a usable script for actors when it was time to film the simulation.

### *Introduction*

The introduction serves no other purpose than to deliver context for the user on the scenario, characters, and purpose of the simulation. It covers the identity of the main characters and which characters actions they will be controlling. It gives them insight into the situation and prepares them for the possible emotional reactions. There is also information provided on the structure of the simulation. The introduction is simple but informative enough for a user to download and play without prior knowledge of the course or previous learning exercises.

### *Phase one; Preparation*

This phase discussed how a manager would need to consider when planning for the announcement. It helps ease worries, helps the manager know what to expect from their subordinates, and what information needs to be delivered to their team.

The first level within the preparation phase covers giving an advanced warning to your team. This is not to be confused with telling your team about the termination early but giving them a chance to prepare for any possible news. Psychological preparation for bad news is important for people in terms of how they respond to the news when they actually receive the news (Bies 2013). At this first level, the user must choose between three options how they want to break the news to their team; a) through an email b) through one on one conversation, or c) in a private meeting. This question also touches on the medium of delivery. What is the most appropriate? It is most commonly found that a face-to-face delivery in a private place is critical for delivering bad news. Not only does this promote an empathetic approach, but also gives the manager a better opportunity to eliminate miscommunication. The correct response to this question would be, c) in a private meeting. Other choices would show a lack of empathy on the part of the manager and possible favoritism.

Level two covers what written materials the manager should be prepared to present in the private meeting with his/her team, this is also known as creating a paper trail. Many individuals often suspect that a problem exists. People may be hesitant to express concerns, or they may avoid

mentioning concerning thoughts out of the hope that the issue goes away. Evaluating what the counselee suspects or understands about the situation prior to telling the bad news allows misinformation to be corrected (Cooperman et. al 2017). In this question, users will be given a list of things and select what they find to be most important for the meeting. The question presents as “what is important to take?”. While in this level there is no negative outcome sequence, the user must click through each of the three options to understand why each item is important (Figure B). The three options users see are 1) confirmation (i.e. proof of the decision, which takes any potential blame off the manager), 2) funding reports (i.e. the project is no longer financially viable and the main reason for termination) which are meant to soften the blow and prove the decision was not arbitrary, and 3) having a staffing list (compiled of a detailed description of each individual's role in the project) which is the only non-necessary item since it can place blame on a particular member of the team and is not relevant to the facts of this case, however still necessary for a well-rounded learning exercise.



Figure B. Concept art of Phase One, question two (right) and Screenshot of simulation (left) where the user must decide what written materials are important for the delivery.

The third and final level of phase one considers whether or not it is a good idea to have another management representative with you to deliver this news, as you are a relatively new manager with little experience in this sector. This stage is also known as coalition building, which is done not only to build support internally but also to send a political signal of consensus, which is powerful information to convey to the boss when delivering the news (Bies, 2012). The purpose of this level is not to share the responsibility, but to understand the importance of learning from others experience in an uncertain situation and alleviate some of the stress the manager will be feeling in order for them to focus on the delivery of the news itself and not be entirely focused on the emotional reaction of their team members. In order to understand not only the importance of essentially having back-up but the importance of who your backup is, users will be given three options for “who they want as backup”; a) a representative from human resources b) no one at all or c) a well-liked coworker from the team. While both options A and B seem well suited to the situation, option A that is preferred since a human resources representative has specialized training in anticipating emotional responses during a crisis situation and on how to de-escalate dangerous situations, which is always a possibility when talking about project termination.

#### *Phase two; Delivery*

The delivery phase refers to all of the activities occurring during the actual communication of bad news. It involves the “who, what, where, and why” of the communication process. Delivery involves both verbal and nonverbal behaviors. (Bies, 2013) During the delivery phase, the user will understand how important timing, location, medium, truth-telling, and information disclosure is when delivering bad to a team of employee’s. They will also see a

critical difference between a narrative based style of delivery and a fact-based style of delivery.

With critical differences covering the time spent on delivery, the tone of delivery, and the language used in delivery. Growing on the concept of anticipating and preparing for the emotional response of your team members it is important to understand the subtle and empathetic cues of language that can make or break a delivery.

The delivery is not covering just the bad news: it is important for the manager to consider all elements of the conversation from the start. Choosing the location can impact the comfort of everyone involved. As such, The user will be given a choice between two possible locations, the manager's own office and a private meeting space. While the office is arguably large enough to hold all staff members and could be considered comfortable for the manager, this is an incorrect answer. The manager's office does not meet the two main points of criteria outlined in the literature review needed for building a therapeutic environment in which to receive the bad news (a quiet, private place which provides adequate seating for all).

Once the location for the news delivery is established, the user must choose how they wish to begin their meeting in this private room, with their staff and an HR representative who helped the manager rehearse. In any conversation there are two ways to start a meeting, with small talk and getting right into it. These are the two options the user will now decide from. While starting with small talk might be easier for the manager, it is their employee's reactions who must be taken into consideration and is the wrong answer. It could be seen as inappropriate to be making jokes or small talk at a difficult time. Keeping the conversation honest from the very beginning

can help keep the trust between the manager and their team. This does not mean that the manager will blurt out that the project is over right away, only that she or he will prepare their employees. Thus, this constitutes the correct answer for this exercise, as research suggests that giving a warning allows the individual to begin to contemplate that something is wrong and opens their mind to hear what that news might be (Cooperman, et. al 2017).

All of the steps leading up to delivering the bad news thus far have trained the user about what goes into creating an environment in which this news can be communicated effectively. Now as they reach the final level of phase two, they are presented with two narrative styles to choose from. While the key points are the same, the delivery is completely different.

### *Phase three; transition*

Phase three of the simulation covers what is known as the transition phase. The transition phase will focus on what the manager can do for the staff after having delivered the bad news. This phase will cover a one on one meeting with a staff member after having come up with an appropriate plan to relocate them within the studio and saying goodbye to an employee who decided to leave for another offer. The purpose of this phase is not only to understand how to approach these possibly difficult conversations in an effective way but to address the psychological contract, which refers to the beliefs regarding the terms and conditions of a reciprocal exchange agreement between the employee and the employer (Rousseau, 1989). In essence, it helps the user understand the steps required to preserve the working physiological relationship between the employee and the employer in such an uncertain time.

While the delivery of the bad news in phase two was honest about the uncertainty of the situation, it is important for the purpose of this question to ensure that the knowledge of each employee is preserved throughout various projects and that the employers are being transparent in their decision making which will build trust for their future relationship. It is best to have these meetings in person to have an open dialogue which emails do not provide.

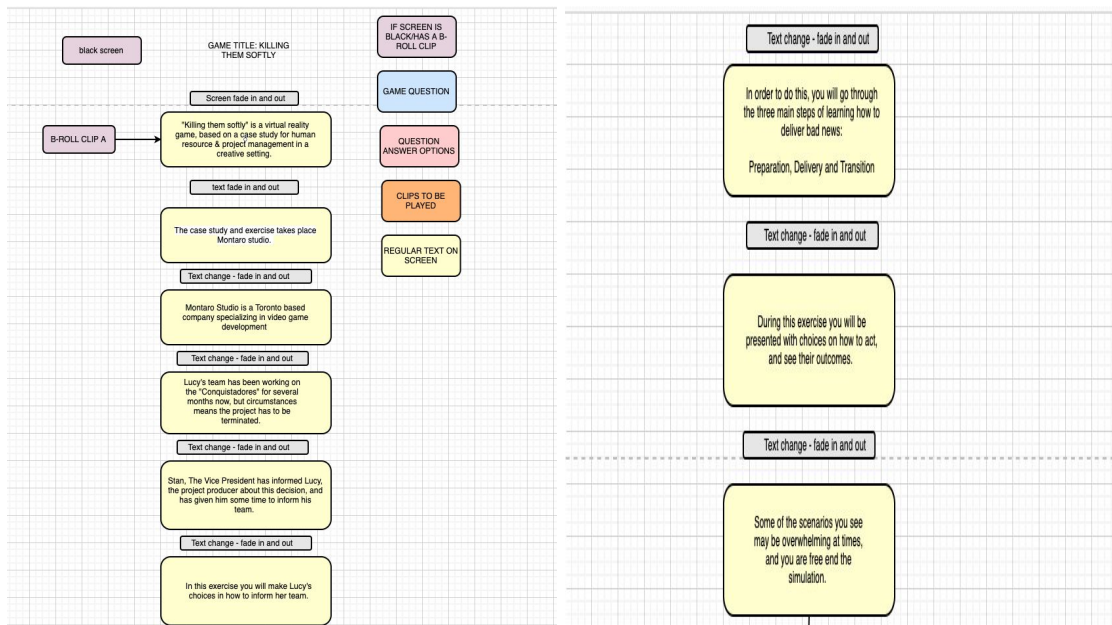
The final question in this phase will be based on talking with an employee that has decided to leave. For the sake of the simulation, you have already tried to convince them to stay but they have decided to go with another offer somewhere else. So the objective in the last level of phase three is to preserve a good working relationship between yourself and the employee because it is worthwhile for HR practitioners to consider obtaining exit interview information multiple time points post-exit (Johns & Gorrick, 2016). What needs to be said by the user can determine if the relationship is good or bad outside this workplace. Since the studio is within the creative industry, there is always the possibility of this employee coming back for another job. After the users complete the final round in phase three, the exercise concludes and they are prompted to remove the headset and participate in an informal post-simulation interview which covers whether or not the learning exercise exceeded the desired learning outcomes.

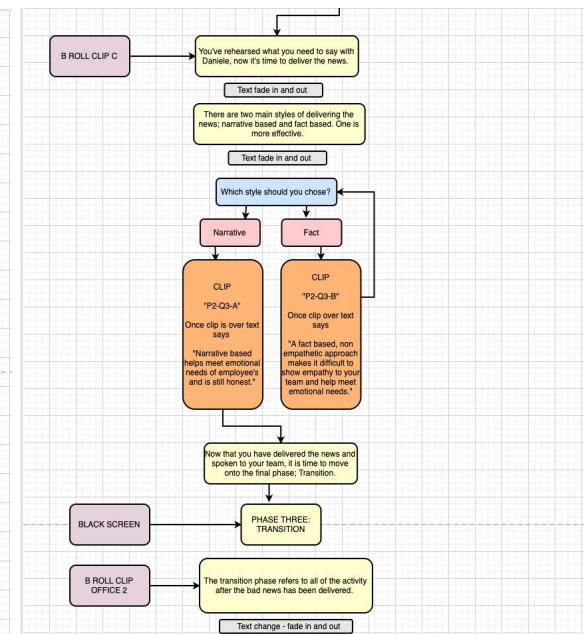
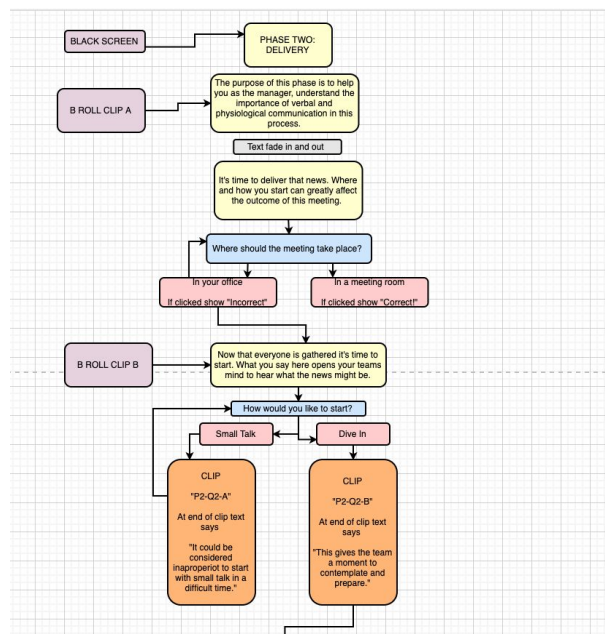
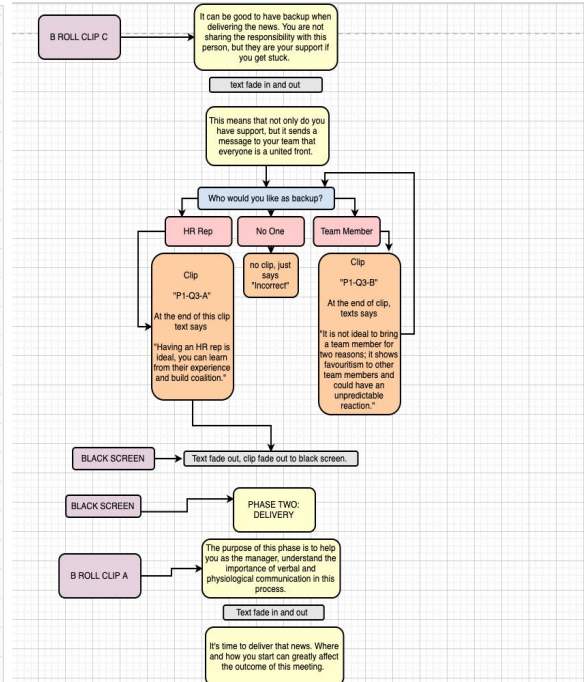
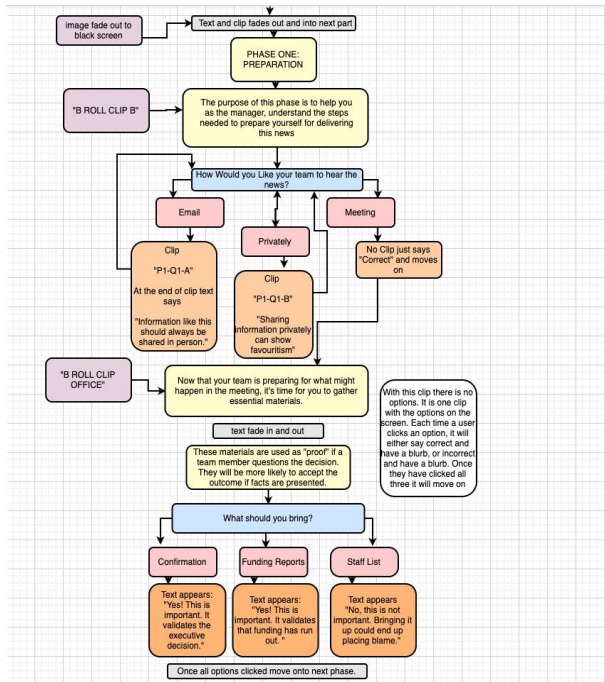
### *Prototyping Version One*

Version one of this prototype was developed to establish a baseline exercise that would be built upon and iterated based on user feedback taken from the informal data gathering



responses from users. It was also developed to confirm the hypothesis that an educational simulation could be developed based on the initial learning exercise. In order to establish the simulation levels, a wireframing chart was created for each of the three phases plus the introduction of the simulation (Figure C, Figure's i-vi). These charts were created to establish an outline of questions, answer choices, and patterns. The prototype was developed in the Unity game engine, for several of its features were ideally suited for this type of project.





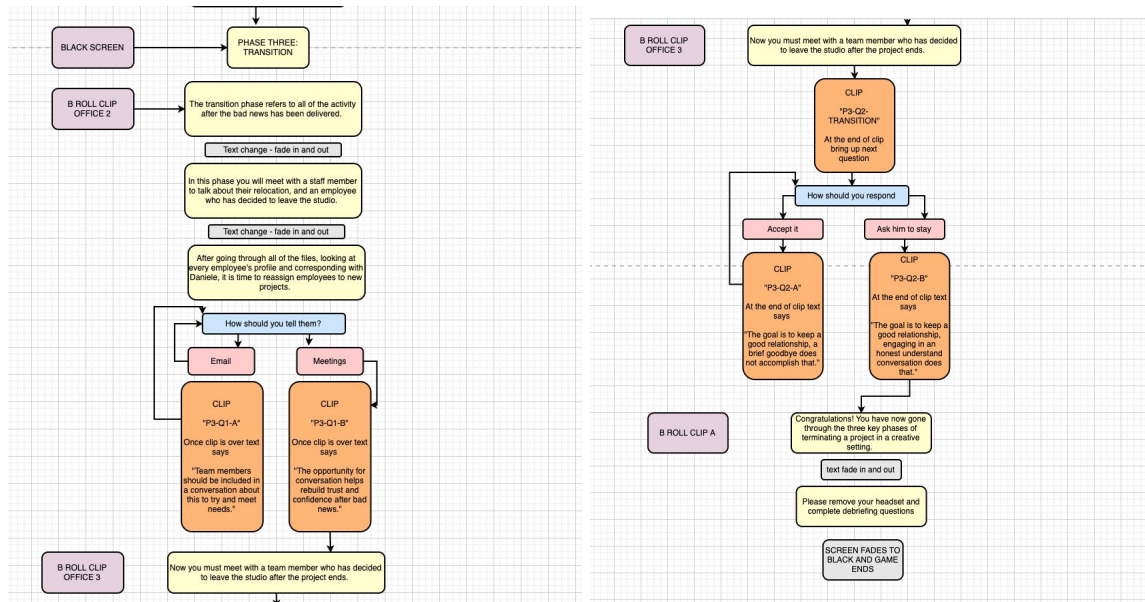


Figure C I-VI. Screen Captures (read left to right) of the wireframing chart used for designing the level system of the simulation. This wireframe was created using diagrams.net with google drive.

The help of Yeramichael Paquette, another MDM student, was enlisted for the coding process. The C# programming language and the “coroutines” implemented by Unity are effective for controlling the flow of a video-based presentation because it allows the programmer to implement a pause in execution until a certain activity has finished—for example, a video has finished playing or a user has acknowledged an instruction. Unity also natively supports the projection of 180-degree or 360-degree video onto a “skybox”, which is the farthest plane visible to the viewer. Essentially, the videos being presented in the simulation appear at a distance natural for the eye’s focal length, and all text and menus appear in front of the video at a fixed distance. This enhances the sense of realism and makes the experience easier for those who have not previously used VR goggles. In addition, Unity includes a software development kit (SDK) for Google Cardboard-compatible headsets, which are widely available and cost-effective and

ideally what students will be using in the simulation. Although this tool has recently been removed from Unity, it was important for the prototype to be compatible with Cardboard, and so an older version of the game engine was used for development.

To bring the final software onto Android, Unity's native Android build settings were used to create an Android package (APK), although some changes were made to the Virtual Reality graphics settings to increase stability. One important point is that installing an APK directly requires the user to disable certain security settings on their Android device, meaning future distribution would be more effective through a marketplace like the Google Play store. For development purposes, however, installing the file directly allowed for more rapid iteration.

The video files used in the simulation were exported from Insta360 Studio, a free piece of software provided by the manufacturer of the camera used to film. The camera uses two lenses and sensors to create two video files simultaneously, each covering half (180 degrees) of the full field of view. The two files can then be brought into the Studio software, which combines them into a single 360-degree file with audio. Exporting from this software helped clean up the audio by removing background noise and enhancing the frequencies of the actors' voices. However, the Insta360 software does not support exporting only 180-degree video, and because it was undesirable to show the full 360-degree arc of the filming environment, it was necessary to combine the exported *audio* with one of the raw 180-degree files. This combination was slightly cumbersome, because it required manually aligning the exported audio with the raw video file, and was performed using Adobe Premiere Pro, followed by encoding to H.264 in Adobe Media

Encoder to reduce the file size. The file size reduction slightly reduced quality but was important for keeping the final package small and easy to run on a range of mobile devices.

When programming, the key consideration was modularity and flexibility. Throughout the experience, the user moves through phases, which each contain a text preamble over a silent clip of background video (“b-roll”). After the introductory text, one or more questions are presented. Each question has three main components: the text of the question itself, a *type*, and a list of answers, which each contain their own text and can be “correct” or “incorrect”. Type refers to what a user is asked to do to complete a question and could involve choosing the correct answer; indicating for several items whether each is important in a specific scenario; ranking items in order of priority or sequence; or other unexplored methods of requesting input from the user. The text is the explanation given to the user to allow them to answer the question, based on information previously given. Although the list of questions was finalized before development, it was important to be able to make changes or expansions to the original concept. The drag-and-drop interface of Unity greatly facilitated this flexibility, because it allowed for rearranging, adding, or removing questions without additional programming work.

The software has no understanding of the structure or content, instead of following a set routine of presenting a phase, asking each question in the phase, and moving on when all correct answers for a question are clicked. In the future, this capability would allow the same Unity project to be used for any number of simulations, simply by replacing the video files and changing the text shown to the user. It would even be possible to add new phases, questions, or change answers to

existing questions. This could be done by somebody with no programming experience, again taking advantage of Unity's drag-and-drop interface. A programmer would only be needed to add new question types, or change elements of the user interface.

## **Evaluation**

As discussed earlier in this paper, VR simulations in an educational setting are best evaluated by looking at the desired learning outcomes. The exercise should provoke feelings of enthusiasm and impressiveness in correlation to the desired learning outcomes of the individual exercise. Understanding whether or not the simulation was successful at achieving the desired learning outcomes will depend on the results of the post-simulation informal survey discussed below. This section of the paper describes what those expected learning outcomes are, the informal survey, and where this project could be implemented into a curriculum.

### *Desired Learning outcomes*

There are four core desired learning outcomes outlined in the initial case study of Dr. Dubois course which are reflected in this exercise. If a student can accomplish all four of these things post-simulation then it can be considered a success. The students should be able to demonstrate his/her ability to observe an in-depth comprehensive case analysis, problem identification/formulation and in-depth (theoretical and practical) analysis of the issues and dynamics of the situation. Meaning students should be able to observe and understand as they go along, picking up on small cues from the actors as to why their choice was the right/wrong one. Students should be able to use theoretical knowledge to expand his/her position on the choices of the simulation and explain each stage of his/her analysis post-simulation. This suggests the

student has observed enough to create a written critical analysis based on their observation. Students should demonstrate a rational analysis by proposing a nuanced judgment respecting the personalities of the characters and the contingency elements of the situation. Finally, students should be able to reflect on what distinguishes contemporary project management, human resource management (HRM) practices in the creative industries from more HRM practices in more traditional settings. This implies that they understand the critical difference of what can make HRM in the creative industries more difficult, the emotional attachment to their work and meeting those employee's needs. Projects are viewed and experienced as exciting and rich in possibilities, making each of them a special and thrilling endeavor (Lindgren, 2014).

#### *Informal Data Collection; Post-Simulation*

The informal data collection will occur after the user has finished the simulation, ideally immediately after they have completed it. The current course taught by Dr. Dubious (CRI 800) already contains some questions related to the initial case study exercise. However, these questions have been related to the content created for the seminar to assure these key concepts are addressed. The questions covered in the post-simulation follow the same pattern as a debriefing questionnaire. In an ideal world, they would be one on one conversations with the student and the professor. However in a university setting, there is always the possibility of a large class size, so the written debrief must essentially “replace” that conversation so the teacher can read and analyze the response afterward. The questions in the debrief can be answered informally in written format and are as follows (questions are based off the learning outcomes);

1. In level one, the first choice Lucy must make is how to share this news with her team members. From what you saw, why should this sensitive information be shared in a meeting versus private conversation?

2. Looking back on phase two, the delivery, do you agree with the choice of a narrative-based style over a fact-based style? Why or Why not?
3. In your opinion, what do you feel Lucy could do better to create a better contingency plan for her team?
4. Do you feel the emotional responses of the team members during each of the phases were prepared for? Could Lucy have handled them better? How could she handle them better?
5. What makes the situation at Montaro studio, a creative environment, fundamentally different to a more traditional environment?

Some of the levels include an explanation as to why the choice was right or wrong, a few select questions from above do refer back to those in order to test the influence of the simulation and whether or not that information can be easily retained like in question one. Questions 2 and 3 explore whether or not the user can reflect on her or his experience. Question 4 touches on the user's ability to understand the personalities of the characters and take those into account by looking at whether or not their responses are reasonable and how Lucy could have better prepared herself. Finally, question 5 analyzes whether or not the user is able to distinguish what makes project management in the creative industry fundamentally different than the traditional environment, the emotional investment team members have in their creative work, and the fact that project-based work allows for team members to return back to the studio.

With these baseline questions, it is the hope that the moderator can see whether or not the simulation has proved to be successful. There is the hope that the analysis of these questions will prove the simulation to be more successful than the traditional learning exercise, while contrary findings would suggest the opportunity for future iterations of the simulation.



### *Where can the simulation be used?*

As per the case's teaching note (Dubois, 2018) this simulation could be used in a range of courses at the undergraduate and graduate level, including creativity and innovation management, human resources management. It is not expected that the simulation will take longer than ten minutes for the user to complete. The ideal situation would allow the user five minutes for an introduction to the simulation, ten minutes to complete it, twenty minutes to go through the questions and possibly discuss their answers with another user or the instructor. There is also the opportunity for the simulation to be expanded to not just an undergraduate or postgraduate course/module but also used as a training exercise in an existing workplace.

### **Conclusion**

#### *Implications for future development*

This project provides an opportunity for many future iterations and versions across many areas of various curriculums. Within this project itself, with a less strenuous timeline, there will be the opportunity for user testing and prototype iterations. This would consist of a control group of students who fit the criteria of a student enrolled in Dr. Dubious CRI 800 course. Users would take part in the simulation. As new theoretical knowledge and case studies open up the field of research there would be the opportunity to create a more accurate simulation. The steps necessary for this would include script rewrites, reshoots with a more diverse cast and extensive phase system that would cover a more desirable amount of topics. There is also the potential to create a more comprehensive simulation covering the story of Lucy's management at Montaro

studio. Covering more areas of interest and not just delivering bad news such as taking disciplinary measures, firing process, and workplace harassment.

There were many questions addressed in this MRP. Is it possible to create an entire simulation based on a learning exercise? How much stimulation is enough? Does this really work better than the typical learning exercise? All of these questions will be addressed as user testing begins and iterations are developed. Another concept that will be explored is whether or not this should be developed into a game where there would be a winning score, tracking progress, and an established set of game goals that differ from the learning goals. This would require further research, and the ability to track the progress of selected students across a longer period of time.

In addition to this, future projects should be developed to explore the use of virtual reality as an accessible learning tool for students with learning impairments or on the autism spectrum disorder (ASD) who have difficulty engaging with typical written activities. There is a large gap in services available for individuals with ASD, and virtual reality training is an efficacious and highly accessible strategy for improving skills among individuals with ASD (Smith et al, 2014). With this in mind, other research should be conducted in order to determine the effectiveness of VR for individuals with ASD and implement that into a higher-education environment. This research could help individuals with ASD transition into a work environment with ease.

At the time when we have only scratched the surface of the potential uses of VR in an educational setting , and while this MRP only covered one niche area of expertise, it still provides a framework and an application example that showcase those potential benefits.

### *Limitations*

The initial concept of this MRP was based on creating the simulation with time for multiple rounds of user testing. With the sudden impact of the COVID-19 forcing Ryerson's campus to close and reducing access to equipment which having to adhere to new safety regulations the pandemic presented many challenges for this MRP. Consequently, having to wait for phase two of the provincial government reopening plan filming was delayed for nearly four months. With just over one left there was not the option of having multiple rounds of user testing and various iterations built to be discussed within this paper. Subsequently, this paper only covers the development of the first prototype. As previously mentioned, the last-minute delivery of information that non-Ryerson students were not allowed access to the proposed filming location. Thus a new one needed to be acquired within the five days before the film date. In order to accommodate the needs outlined by the DMZ in order to film, the original cast of fifteen was narrowed down to six including the author of this paper. The unexpected challenge of finding actors to portray the roles without the need for monetary compensation meant the main cast was portrayed by family members and a member of the MDM cohort. The primary role of "Luke" was changed to "Lucy" to allow for myself to take on the role, meaning it was now the author's job to be an actor, writer, director, and producer on set. Under the unique circumstances of the situation, this research project can extend past the graduate program to an independent research project where iterations can be developed to the point where it is ready to be used in a

higher-education classroom setting. It also suggests that the simulation should offer a variety of customizable characters to allow trainees to identify with the story and to better reflect diversity.

### *Summary*

The overall goal of this research project was to build an e-learning exercise based on an HRM case study that would ultimately be used to enhance learning engagement and information retention. More specifically, the project was aimed at building a multi-level simulation that would take the user through three critical stages of delivering bad news to a team. This project was achieved by addressing two main questions: 1) How can we train individuals for complex work environments without exposing vulnerable students to potentially harmful situations?; and 2) how can we create these environments with a role-player simulation? Which would challenge the conventional learning method offered by the original case study and seek to exceed the learning expectations, with the hopes of replacing it in the classroom eventually. By focusing on taking the user through the proposed story of delivering bad news to their team, arguably the most difficult task as a manager, users are learning how to not only navigate the conversation but what the necessary steps are for delivering that news. The simulation is aimed at better preparing future managers of the creative industry for some of the most difficult tasks they will all have to face at some point in their careers. This MRP was created to inspire educators to expand their curriculum into the digital world, by looking at the results of this MRP and determining its own place in their classroom. Overall, the integration of traditional learning material integrated with new digital learning technologies, there is now an opportunity to expand into more immersive and engaging learning activities across universities. This is something that should be taken

advantage of as the opportunity for in-person learning is not accessible in the foreseeable future within the university environment.

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