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The Stanley Rhetoric: A Procedural Analysis of VR Interactions in 3D Spatial Environments of Stanley Park, BC

In this paper we propose a closer examination of the key reasons a VR experiential fieldtrip of Stanley Park, British Columbia developed by UBC's Emerging Media Lab in partnership with Metanaut VR is a rhetorically effective discourse. From a rhetorical standpoint, there are wider implications if students and larger audiences are enabled to both create and experience VR content.

Procedural rhetorical analysis in videogames has become a core methodological approach. Procedurality according to Bogost (2007) affects three areas: politics, advertising and learning. Several of these implications have already been investigated. Also, particular attention has been paid to how new media open new possibilities through play and how in turn this creates a renewed interest in digital rhetoric (Daniel-Wariya, 2016). At the same time, procedural rhetoric has been also investigated, at length, in connection to learning through games (Gee, 2007). Learning also has been central in a few studies on VR in education (Dalgarno, 2010). However, there are no specific assessments of procedural rhetoric outcomes of particular VR educational projects.

First, we will outline some theoretical connections that are needed for a rhetorical analysis of virtual reality experiences. Next, we will focus on a rhetorical analysis of preliminary project documents, combined with an interactions analysis in this VR site. Finally, we will propose a critical reflection tool for further consideration once the project will be fully integrated in the classroom.

Starting points: Rhetoric & Procedurality

In order to arrive at how rhetorical analysis is useful in analysing VR experiences, we need to investigate how rhetoric is different in new media relative to traditional texts. A significant amount of work has been done in digital rhetoric and online persuasion (Warnick, 2007). Such

work was partly prompted by a seminal text on the language of new media, in which Manovitch (2002) argued:

> "Traditionally, texts encoded human knowledge and memory, instructed, inspired, convinced, and seduced their readers to adopt new ideas, new ways of interpreting the world, new ideologies. In short, the printed word was linked to the art of rhetoric. While it is probably possible to invent a new rhetoric of hypermedia […] the sheer existence and popularity of hyperlinking exemplifies the continuing decline of the field of rhetoric" (Manovitch, 2002).

Formulating a clear response to such claims is key to subsequently understanding the role rhetoric plays in analysing VR experiences. It's important to note that rhetorical studies outline how any text has potential to be rhetorical. Booth (2004) would probably disagree that new media trigger a decline of rhetoric. A definition of rhetoric by Booth (2004) encompasses the broad terrain rhetoric covers as rhetoric is:

> "… the entire range of resources that human beings share for producing effects on one another: effects [being] ethical (including everything about character), practical (including political), emotional (including aesthetic), and intellectual (including every academic field). It is the entire range of our use of "signs" for communicating effectively or sloppily, ethically or immorally. At its worst, it is our most harmful miseducator – except for violence" (Booth, 2004, p. xi).

For Bitzer (1968) an act of rhetoric is called forth by a "rhetorical situation" that has an effect on audiences. In identifying the exigencies of rhetorical situations, he argues that its most important element is the audience. "Situations are not always accompanied by discourse" (p. 2). Particularly, "it is the situation which calls the discourse into existence" (p. 2). Bitzer (1968) outlines a "theory of situation" as rhetoric is situational, not necessarily with regard to the context of meaning of the situation, which is a "general condition of human communication", or its persuasive character (p. 3). Rhetoric is situational particularly because it can change the audience "in belief or action" (p. 3). In order to clarify "rhetoric-as-essentially-related-to-situation", Bitzer (1968) argues:

> "… A work of rhetoric is pragmatic; it comes into existence for the sake of something beyond itself, it functions ultimately to produce action or change in the world; it performs some task. In short, rhetoric is a mode of altering reality, not by the direct application of energy to objects, but by the creation of discourse which changes reality through the mediation of thought and action" (pp. 3-4).

The definition of a rhetorical situation follows:

> "Rhetorical situation may be defined as a complex of persons, events, objects, and relations presenting an actual or potential exigency which can be completely or partially removed if discourse, introduced into the situation, can so constrain human decision or action as to bring about the significant modification of the exigence" (p. 6).

How does this apply to educational VR experiences? Rhetorical exigencies abound in virtual reality with an educational purpose, as this discourse is usually produced in order to create change, alter belief or reality and move to action.

The use of rhetorical analysis in video games studies is well-established and provides leverage for understanding rhetoric in VR. While all the above-mentioned resources that Booth (2004) mentions are used in video game analysis, rhetorical discourse includes one more important resource - rhetorical procedures. Bogost (2007) introduced the concept of "procedural rhetoric" in *Persuasive Games* as a way of showing how video games' unique modes of persuasion. He argued:

> "…procedural rhetoric is the practice of using processes persuasively, just as verbal rhetoric is the practice of using oratory persuasively and visual rhetoric is the practice of using images persuasively. . . procedural rhetoric is a subdomain of procedural authorship; its arguments are made not through the construction of words or images, but through the authorship of rules of behaviour, the construction of dynamic models" (pp. 28–29).

Thus, in the same way that visual rhetoricians would argue visual rhetoric as the field that adequately deals with the persuasive powers of images, computer games rhetoricians need a field that can explain the type of interactions made possible by this new medium. "Verbal, written, and visual rhetorics inadequately account for the unique properties of procedural expressions. Embodied action is key in assessing these procedural expressions that communicate and represent beyond words and images. Several authors (Gee, 2007; Konzack, 2007; Bates, 2008; Voorhees, 2009) conducted critical rhetorical procedural analyses in commercial or serious games. After connecting several studies on the topic, Paul (2010) concludes the following:

> "Rhetorical analysis offers virtual worlds a perspective for analysis of discourse, especially the procedural, paratextual, and textual discourse that typify virtual worlds.

> The tools of rhetoric help analyze how things work, what they do, and how these kinds of texts interact with each other to shape the context of virtual worlds" (p. 13).

How can this method be adapted to include educational VR experiences? As our case analysis is a virtual field trip, it is important to mention that several studies look into geographical representations of virtual reality (Unwin & Fisher, 2003). Rhetorical procedural analyses of virtual reality environments are however not yet developed.

About the project & case analysis

The goal of this project funded through an Open Education Research grant and developed in Unity3d by University of British Columbia's Emerging Media Lab in partnership with a VR industry company (Metanaut VR) was to develop a proof of concept of an experiential virtual reality field trip that is both immersive and educational. According to the lead authors (Dr. Lock Brown, UBC, Dr. Arthur Gill Green, Okanagan College, Dr. Derek Turner, UBC and Saeed Dyanatkar, Executive Producer at UBC Studios) the project involved a group of at least 15 undergraduate UBC students who produced 70-80% of the work (Green in Emerging Media Lab, 2017). In this process, students had the assistance and support of UBC Studios, UBC Geography, MetanautVR, and the UBC undergraduate society AGDA.

For the purpose of this case analysis, we looked at stated goals outlined by authors in proposals and interim reports. The focus was to understand the motivations of the project and particularly what constitutes the context of this rhetorical situation. We also looked at logs of possible user interactions with the environment, a video walkthrough/tutorial and a wiki developed by the students who contributed to the project. In addition, we experienced the virtual field trip itself.

Let's first investigate the context of the experiences this group of undergraduate students had and how this context speaks about rhetorical exigencies. Students drove the project as they produced content and wrote code for a site that re-created a 3D spatial environment of Stanley Park located in Vancouver, British Columbia. They had no prior experience with either. They had help from professors and industry experts but essentially had an opportunity to dive into

this project and develop a framework from scratch. This was done within an open pedagogy framework. One of the main project goals was "to build the capacity for future projects in the future" (Dyanatkar in Emerging Media Lab, 2017). Assets and workflows are to be released as educational resources and in addition, white papers and a best educational practices document will be published shortly. A report and research article by Dr. Arthur Gill Green will also be available. Current information about the project, now in phase 2 is published on the Geography VR Project Wiki (2017) and the Stanley Park Geography VR Field Trip (2017) website.

The next question is why Stanley Park in particular chosen for this student-led project? Stanley Park, one of the most iconic Canadian destinations is presented in the VR site, as an experiential field trip, featuring educational content as well as 3D spatial environment models of Prospect Point, Beaver Lake, Lumberman's Arch, and the Hollow Tree (BCCampus, 2017). Green (2016) discusses the reasons for choosing this location, one of which was to "lower barriers accessing field locations" (para. 2). In this sense, he argues, VR has an unexplored potential for creating interactive content around landmark sites that would otherwise not be available to many as field trip experiences. Also, "there has been very little work on best practices for linking pedagogically founded learning goals to VR resources" which led to the impetus for an "experimental educational project" (para 2). So, how does this stated goal speak to a change in discourse in the way field trips can be conducted? We argue it does that in at least three ways: (1) VR field trips may help remove financial and logistic barriers for numerous students, (2) VR field trips prompt audiences to experience and interact with educational content that would otherwise be accessible only in more traditional formats, and (3) VR field trips can encourage free exploration of and revisits to a designed spatial environment whereas field trips often entail experts leading students through one visit to a location.

Given the limited abilities of educational institutions to lead and develop field trips, alternative approaches are needed. According to the authors, this project may fill in an important gap, as new technologies such as VR and augmented reality (AR) have the potential to provide more opportunities for experiential learning.

In addition to these core exigencies, this particular case also reveals how VR and AR experiences enable one to critically assess various histories of a place and develop a layered understanding of the implications of travelling to a location. When going in the site to Prospect Point for example we are welcome by the following audio content:

> "Welcome to Prospect Point. This famous viewpoint is one of the most popular tourist attractions in Stanley Park. […]. This forest surrounding you is an ancient wilderness… or is it? The trees you see around you certainly mirror the appearance of forests in pre-industrial times" (Emerging Media Lab, 2016a).

The audio content further invites the traveller to "look closer", contemplate how this natural environment is constantly changing and think about the role deliberate planning and policies had in shaping the way the park is today.

In the VR experience of Stanley Park, one can experience the landscape but also begin to engage with a more nuanced history as visitors/students/users have opportunities to explore the complex history of this impressive location that was once home to Burrard, Musqueam and Squamish First Nations people (City of Vancouver, 2017). When reaching Lumberman's Arch travellers/students/visitors are asked to consider "another history… one that is not easy to look at" (Emerging Media Lab, 2016b). The accompanying audio says:

> "The history of Stanley Park is inseparable from Canada's history of the marginalization of its indigenous people. When Lord Stanley declared this part to be "for people of all creeds and customs", a few restrictions applied. He neglected to include the local first nations communities who already lived here. So today - - it's hard to spot the evidence that this was once a thriving village. Yet another example of how indigenous history from Stanley Park was erased" ("Lumberman's Arch" UBC student content, 2016).

The audio recording goes further into issues with these two parallel histories of colonialism, on one hand and indigenous heritage, on the other and explores current problems with consumerist tourism practices that create a "semblance of First Nations in the park, despite the fact that authentic culture has been removed" (Emerging Media Lab, 2016b).

The above are just some examples speaking to the ethos conveyed via audio content about the park itself. A longer and more detailed analysis should include other examples that lend themselves on a rhetorical and textual analysis of the audio content accompanying the history

of Lion's Gate Bridge or Hollow Tree. For now, let's shift the focus on how rhetorical procedures add to the experience of visiting these VR locations.

From a procedural standpoint several types of interactions are possible in this VR experience of Stanley Park. We have already referred to examples audio content rendered via "cassette players" which can be accessed and stopped anytime. Other interactions in the environment are: walk/teleport, hand interaction with the environment, viewing a map, watching 360 videos, info panels and photospheres of other locations. Reading through the project logs of potential user experiences, we can identify some of the goals attached to these procedures. Walking and teleporting allow users to explore the environment at their own pace but also to jump from one area to another. Interactions with the environment allow users to experience the park like they are physically there. One can interact with the geology or plant models and learn about the place in ways that textbooks do not allow one to learn. Using one's hands allows users to interact and play with the environment. Maps allow users to understand the location and destination and get a bigger picture of the destination. 360 videos, cassette players, info panels and photospheres allow users to learn more about the place and make sure they learn about the key features and do not miss important points about the experience. They also serve to explain the material in more depth in an interactive fashion.
The combination of audio content, text featured via info panels and interactions with objects in the environment makes this VR experiential field trip rhetorically effective from a procedural standpoint. Through the VR experience one is able to more tangibly interact with objects that would otherwise be abstract or one would read about. Also, the range of interactions renders the experience "realistic" which is in line with the stated goal for the project to create a "realistic field-trip environment" where one is able to interact with different parts of the environment and learn about the site, not just walk through and admire the scenery (Peter Kao in Emerging Media Lab, 2017).

In addition, the VR field trip prompts one to consider the complicated history of this location and analyse rhetorical implications that are not immediately obvious. Stanley Park was "created with the intention of showcasing the wild coastal forests" but it is actually "far from a wild place" (Stanley Park History, UBC student content, 2016). As everything in the park has been

managed students/users/visitors are asked to consider how “our concept of nature changes” and how we interact with it (Emerging Media Lab, 2016c).

Several tools are available for analysing video games as media texts. The most cited/used one is probably the one developed by Consalvo and Dutton (2006). Several other authors argue for the need to develop more connections between critical communication, rhetorical theory and game studies (Voorhes, 201). Some authors argue for game-based pedagogies in writing classrooms (Shultz Colby, 2017). Here we begin to contribute to a pedagogy of teaching writing about VR experiences via a combination of textual and rhetorical methods.

Based on our analysis of this particular educational VR experience, we propose a teaching tool that can used in the classroom. There is a fair bit of literature that discusses how games offer multiple opportunities for learning. One such opportunity is writing about games. Developing writing reflective assignments helps in solidifying the knowledge and reflecting on the experience. Combining elements of Consalvo and Dutton’s (2006) list of elements that lead to a comprehensive textual analysis of video games with aspects of the rhetorical situation and procedural rhetoric can lead to a set of open-ended questions that students could think through when interacting with a VR environment:

1. What do you think is the goal of this experience?
2. How does it feel to be in this virtual place?
3. How does the tutorial work for you? Rate its effectiveness:
   1 (low)_ _ _ _5 (high)
4. Can you interact with the objects described in the tutorial? Rate your interactions:
   1 (low)_ _ _ _5 (high)
5. What is your favourite action/interaction and why? What does each do? (*Specific examples like orbs, walking, teleporting can be added.)*
6. What are other complementary rhetorical devices (music, text, images, etc). Do they enhance or deter from the virtual experience? Explain why.
7. Do you need paratexts (lectures, online materials, etc) to make sense of the experience or does the VR experience make sense on its own? Explain what materials are useful/not useful.
8. What have you learnt from exploring this site?
9. What do you wish this experience did in addition to what it currently does?
10. Would you come back? Why or why not? Would you advise someone else to experience this fieldtrip?

Conclusion and relevance

Beyond this specific VR case, we need to examine rhetoric in VR with an educational goal in order to assess pedagogical effectiveness and success with audiences. Considering the rhetorical impact of VR's affordances may allow developers to enhance the potential of meaningful interactions with students and other users. This case analysis reveals that meaningful interactions are possible in VR designed with an educational purpose. Also, it is a case that demonstrates the potential to develop VR projects in imaginative ways with less resources than one expects whilst making them widely available. In addition, a VR educational experience gives a sense of a place but also enhances it through added functionality. Supplemental materials and paratetxts can be very useful. VR experiences allow for a range of objects to be already embedded in the experience itself and contribute to learning. In addition, the project reveals the potential to lower cost barriers to field trips but also to lower cost barriers to creating VR educational content. Enlisting student work with the goal of creating such educational materials provides ample opportunities for applied learning across disciplines. Also, the creation of open education VR resources creates possibilities for wider audiences to engage with this new technology. Consequently, this case analysis may open up new possibilities for investigating how students/users derive meaning from interacting in these environments and continue a dialogue between several connected areas of education and VR, games and pedagogy, games and procedural rhetoric.

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