(Un)ChARTED Cartographies:
Mapping Networked Avatars

"(Un)ChARTing poses both problems and possibilities for the explorer and educator."

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(Un)ChARTED engages assessment by redefining and expanding the boundaries of the chart or checklist to the charting of a networked path through de-territorialization/re-territorialization. This article discusses cartography as the creation of learning maps of a networked territory by the performance of networked avatars. The term avatar is expanded beyond the concept of the digital avatar and into the realm of any incarnation of the virtual in visualized/tangible form. Through analysis of video reflections as student avatars, the learning map reveals growth over time. Specific examples of student and teacher avatars are analyzed as a way of engaging in the process of becoming through the creation of a network of learning that is ChARTED through engagement.

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Writing has nothing to do with signifying. It has to do with surveying, mapping, even realms that are yet to come. -(Deleuze & Guattari, 1987, p.5)

*U*ncharted is a video game series that follows the journey of a contemporary treasure hunter. In the game, the player as the avatar Nathan Drake travels to uncharted islands in search of historical treasures. In video gaming, game characters or avatars allow players to interact with the digital world; however, the term avatar can be more broadly defined as a performable embodiment of self. The term avatar (*avatara* or incarnation in Sanskrit) already exists within the collective cultural consciousness. In fact, any manifestation of an understanding, concept, or idea in a visual, verbal, and/or tangible form and its performance is an avatar. In *Uncharted*, the player, traveling around the world as the avatar Nathan Drake, charts a journey. The charting performed by the player as Drake does not mimic the experience of following a predetermined path on a map as he or she travels across a literal landscape. Instead, the landscape is created through its charting. This is cartography, a process in which each choice made adds a new dimension to the map's representation. The game *Uncharted* creates a lens through which we as educators can examine the concept of education in relation to maps, territories, cartographies, and avatars that both produce and can even become the maps in question. (Un)ChARTing poses both problems and possibilities for the explorer and educator. Rather than urging the creation of a linear curriculum that focuses on assessing a preformed final outcome, this article proposes the concept of (un)ChARTED cartography which moves beyond visualization of data into performance of the data. Performance (not pre-formance) allows teacher and learner to learn together. The task for teacher and learner as explorers is to allow for territorialization/deterritorialization/re-territorialization as real life circumstances and experiences impede or open up possibilities. For Drake, the video game protagonist, the final assessment of his success is whether or not he retrieves the treasure. In teaching and learning, multiple treasures can be discovered along the way that are often undervalued by educators, treasures such as student observations, reflections, and newly formed connections between the student and the larger network of the world. These treasures or avatars can be assessed in order to provoke and engage learners in the process of creating their own learning networks. Avatars as a performance of self produce formative instances as fragments of understanding and summative measures as a big picture map of these instances over time (Naughty Dog, 2007; Britt, 2008; Coleman, 2011).

Networked Curriculum

In *Uncharted*, Drake has an unmapped territory to explore. He can go in a variety of directions based on the formative decisions he makes as he traverses the territory. For education, the concept of a territory serves as a metaphor for disciplinary ways of knowing. Instead of placing the onus of assessment solely on the shoulders of the teacher, we can promote forms of peer and self-assessment. These measures of peer and self-assessment become formative points along a charted path.

Curriculum becomes the path created between these charted points as individuals and groups traverse the territory. Art educators such as Efland (1995), Keifer-Boyd (1996), Carpenter and Taylor (2005; 2003), and Sweeny (2008; 2013) re-image the linear curriculum through lattice, hypertext, and networked models of

curriculum structure. Networks, according to Sweeny (2013), consist of nodes, links, and hubs. Nodes are elements within the network that are distinct. Links are the connections between nodes, and hubs are nodes that have multiple links. Paul Baran's (1964) version of complexity theory describes the architecture of networks in three separate ways: centralized, distributed, and decentralized or scale-free. Centralized networks are those networks clustered around a single node. In education, time and efficiency are contributing factors in the belief that the curricular network should be centered around the teacher. All information must pass through the teacher as a means of verification. The negative aspect of such a system is that the students are vulnerable to experiencing complete failure. If the central node (teacher) fails in the performance of his or her job, the whole system can crash. A centralized network requires the teacher to know every aspect of the concepts being discussed and be capable of evaluating students' understanding of those concepts objectively. Distributed networks, however, connect all nodes together in a non-hierarchical structure. They can continue to function even if nodes are removed. If nodes within a system fail, a greater number of transfers are required before all information is received by the system. In a decentralized network a few hubs distribute and evaluate the information. Although not every node is connected to every other node, decentralized or scale free networks have two major advantages over centralized and distributed networks: 1) nodes are evenly distributed and therefore allow for efficiency in the transmission of information and 2) the network is able to withstand shock because the system can continue to function regardless of the failure of one node (Baran, 1964; Davis & Sumara, 2006; Sweeny, 2013).
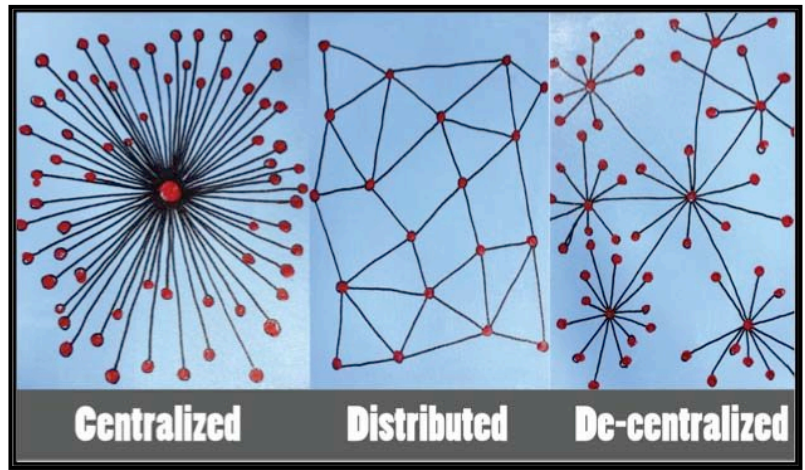

Figure 1. **Types of Network Architecture. Examples of Network Architecture from Paul Baran's Model**

In educational assessment, nodes serve as waypoints of formative understanding within the learning network; the teacher, the student, and the student's peers as hubs can track both individual and collective growth through a visualization of the network. Each node or hub can be magnified to reveal another network with further connections on each layer. This model of the learning process requires a decentralized network architecture in which new experiences of the individual link up at various points to form hubs of understanding that can be both individual and collective. When this model is applied to assessment, the teacher serves as a guide for the understanding of assessment practices. The teacher, however, is not the sole evaluator for every measure of assessment. Alternate routes and multiple hubs in the learning process can therefore be assessed as students, their peers, outside assessors, and the teacher chart the map/network.

Cartography

Like Drake, educators and students must chart their journey through the learning territory as a path between nodes. This is a process of cartography. Cartography (*carte* or map and *graphy* or writing) allows us to write the map of the territory with its changing or developing contours and boundaries. This map is not the territory; although it will resemble the territory, it is

incapable of representing all the territory (Korzybski, 1990).

Cartography in relation to students' personal understanding and learning is about student construction of maps that are both individual and collective and speak to the illumination of the path rather than the dictation of a path. One can use a map in order to speak about a map. If we think of the map as language or creation, words or objects in and of themselves are not the thing, feeling, fact, situation, relationship, or learning that might or might not be taking place. As such, words and objects are unable to express every aspect of our virtual understanding of the world. We leave footprints or evidence of our learning along the way, but we are unable, in that moment, to interpret or understand it. Language and creation are, however, self-reflexive. We can talk about our words and creations. What this property of language and any other form of re-presentation allows is the ability to create feedback loops. Through feedback loops, the map is self-reflexive and can be revisited in order to create and discover new meaning. As we move across different aspects of the terrain, adaptation must occur. Each node in a networked construction of curriculum and assessment is a point of territorialized knowledge that can be revisited based on the context of a given learning situation. Knowledge and assessment, therefore, become dynamic rather than static and are arranged as a network rather than a straight line, spiral, or lattice. The network that is formed becomes a macro view of the micro territories formed by individual nodes (Petersen, 2005; Davis & Sumara, 2006; Ling, 2009).

Territorialization/Deterritorialization/Re-territorialization

In *A Thousand Plateaus* (1987), Gilles Deleuze and Felix Guattari discuss territory as a metaphor. They define territorialization as the creation of borders or boundaries; deterritorialization as the process by which one traverses those boundaries; and reterritorialization as the process by which new boundaries or borders are created.

The processes of territorialization, deterritorialization, and re-territorialization are integral to complex systems. Cartography allows us to "write" the map of our evolutionary territorialization in the sea and our deterritorialization in the movement to land. Our emergence from the sea through the formation of legs, development of oxygen breathing lungs, and the growth of opposable thumbs becomes a form of re-territorialization of the body which enhances our survival in our new territory. This deterritorialization and re-territorialization is not a hierarchical scenario; it is a performance that is context specific and dependent on the needs of the organism (Petersen, 2005; Ling, 2009).

The Cartography of Rubrics

Metaphorically, rubric (from *rubrica* Latin for "red earth") is the land as material for creation and communication through the processes of territorialization /deterritorialization/re-territorialization. Rubrics, as currently used in most educational settings today, act as maps with predetermined routes that are utilized in assessing curriculum, teaching, and student learning. A rubric as a chart akin to a star chart or network architecture can, however, promote exploration of the educational landscape rather than dictating a predetermined course (Coil & Merritt, 2011).

In medieval illuminated manuscripts, red letters (or rubrics) served as instructional guides for readers, hence the connection between the word rubric and the red pigment used to grade papers. The rubric provides landmarks or guideposts without dictating

every aspect of the learning. The teacher produces objectives, but the objectives become flexible enough to allow for multiple outcomes (Coil & Merritt, 2011). As educators, we have transformed the function of a rubric from a guide for instruction to an evaluation tool, which can crystallize outcomes. Returning to "red earth" as the original meaning of rubric opens up a multitude of possibilities for understanding assessment as guidance that includes evaluation in red ink, but is not its exclusive mode of operation. If we begin to think of the experience itself as the red earth from which meaning is made, each map becomes a networked avatar that consists of layers of incarnation that can be both formatively and summatively assessed. Each time students arrive at a new understanding, the embodiment of that understanding can serve as a means by which assessment can take place (Coil & Merritt, 2011).

Performance

In terms of assessment of student understanding, we should be looking for performance rather than pre-formance or a predetermination of the network structure. The most recent iteration of the National Standards for Art Education removed the area of performance from the standards because it was believed that it did not directly relate to visual arts education (Stewart, 2013). To understand performance only in its most literal interpretation as a musical or theater performance is to limit the possibilities of what performance can be for visual arts education. The player in the game *Uncharted* performs Nathan Drake and becomes him through his or her actions. The students in the learning situation perform their understandings of the content in order to internalize that

content and construct meaning for themselves. Butler (1988) describes performance as a discourse of "acts." In her discussion of John Searles, she references "speech acts," which refer to the act of speaking as well as the bond that occurs through dialogue between speakers. As art educators we can begin to see ideas and concepts performed as avatar through dialogue, artwork, writing, video, audio, mapping, and a variety of other incarnations. Butler (1988), quoting Simone de Beauvoir, states that "one is not born, but, rather, becomes woman" (p.1). This understanding of performance introduces the concept of time into the constitution of self-identity. One is not born an artist; one becomes one through performance.

Deleuze uses a literary reference to Alice from *Alice in Wonderland* to illustrate the process of becoming. Alice becomes both bigger and smaller when she drinks from the bottle marked "Drink me." Each moment she is larger than she was and smaller than she will be; she is becoming. In deconstructing this process, we can see that Alice moves in two directions simultaneously through the creation of a network. Network creation is a process that involves de-territorialization and re-territorialization through stratification or classification of immanence/possibility; Alice both gains and loses nodes or strata in this process. Each passing increment provides a performance through movement and each stratum is a new node in the networked Alice. Like Alice, as students engage in the performance of new concepts and creations, they are formulating their own understandings through the creation of networked selves that both add to and subtract simultaneously. Such a network constitutes "world formation" through an ever-changing state of becoming. It

encompasses both growth and decay (Deleuze, 1990; Deleuze & Guattari, 1987; Nancy, 2007; Sutherlin, 2010).

Learning is less about achievement and more about growth over time or the process of becoming. A tree or plant continually expands, getting larger as time progresses. The tree or plant does not grow without losing leaves and sometimes must be pruned to allow for new growth. Students' assumptions that prove invalid to their current understanding of the world atrophy and provide a space for new understandings to grow. Invalid assumptions are examples of atrophic nodes, those aspects of the network which "fail" or become non-essential to the process of network formation. When a student or teacher "fails," he or she can begin to evaluate those aspects that caused the "failure" and/or those aspects that are no longer essential to the creation of the learning network.

This model of thinking turns the concept of failure into success because learning becomes an ever-evolving process. Assessment adds to the complexity of the network. In the decentralized network architecture described previously, node failure can be redirected to another hub as a continuation of the process of becoming. Instead of relying on a single authoritative method of creating art, avatars allow us to think differently through iteration. Understandings can be made visible and interpreted to gain new insight through self-reflection and outside critique.

According to Deleuze & Guattari, the birth and rebirth of an avatar is a performance of arrangement that both territorializes and de-territorializes as it moves. This movement as performance flows from the virtual to the physical and

back again. As the avatar moves between strata, it accumulates and creates new avatars; it both is and becomes (Deleuze & Guattari, 1983).

As avatars, students have the opportunity to critique assumptions held about the binary logic of right and wrong; the concept of *the truth* becomes *a truth* that shifts with context. The arts depend upon this type of thinking because they are not subjects that promote the assessment of a right answer. Instead, the arts are an exploration of larger themes that embody what it means to be human. The embodiment of these themes exists as dialogue, object, and/or action that are simultaneously representation and action. Dialogue, objects, and/or actions become avatars or incarnations of *a truth* and a documentation of the student learning process (Deleuze & Guattari, 1983; Britt, 2008; Ulmer, 2012).

Performing Student/Teacher Avatars

In the following section, student avatars serve as methods of formative and summative assessment of student understanding and my own teaching in a graduate course I teach entitled *Educational Theory: Teaching and Learning in the Arts*. Each week students record three one-minute performances as reflective pieces to help them synthesize and embody their learning. The goal of these one-minute presentations is to document the student's learning process, both implicitly and explicitly, over the course of the semester. This means that what students say and do (the content) is as important as how they say and do it (the form it takes). When students create desire lines, or routes created through use rather than intention, they match their own interests. Concepts and skills emerge from student interest and necessity of use rather than connection to

a specific teacher generated outcome. In terms of the one-minute video/audio reflections, students choose what content to discuss and how that content is utilized and synthesized. The prompt for these reflections requires them to reflect on some aspect of their learning either inside or outside of class over the course of the week. While the example given is specific to an exploration of theories, desire lines can be applied to a student-centered form of curriculum in art education that defines outcomes and assessments reflexively. These digital footprints create a record of students' individual journeys. Furthermore, desire lines produce a map of the territory from the inside out. They are a set of possibilities rather than the totality of the territory in question. In a practical sense, this means that students explore theories and acquire skills and knowledge through exploration of themes (Myhill, 2004).

Themes become points of entry for student exploration. Students respectively decided the format of these performances. Some students chose to use audio only. However, many students videoed the performance of an object as their avatar, while others utilized their own image in the video. Figure 2 shows how one student chose to speak through an object. Performing through an object allowed this student the opportunity to open up through performance and provided a comfortable level of anonymity. Two students are highlighted to demonstrate the development of avatars, Tom and Danielle.

Danielle was reluctant to begin recording her thoughts. In her first video

Figure 2. **Student Video Reflection. Student performing an object as her avatar for reflection.**

she begins with, "Huhhhhhh! All right. . . . So, reflection number one. Ok, so this feels incredibly strange and unnatural. . . . Wow, I am already at 20 seconds." (D. Klim, personal communiction, October 17 2013). She is taken off guard by how quickly the time passes and proceeds to finish up her comments. In her second video, she is more comfortable with recording herself as she discusses Design Thinking, a process utilized by designers to empathize, define, ideate, prototype, and test concepts out. In this reflection she begins to connect her art making practice with her teaching practice.

Ok, so this is my second reflection this week. I just had my meeting with Lily about Design Thinking, and we had the most amazing conversation that I have had recently. It was unbelievable just the things that surfaced and just how we are both connecting to this way of thinking. It is just, I don't know. It is so refreshing. I feel like I am finally starting to find a way to bridge my academic and intellectual pursuits with my creative pursuits through Design Thinking. (D. Klim, personal communication, October 28, 2013).
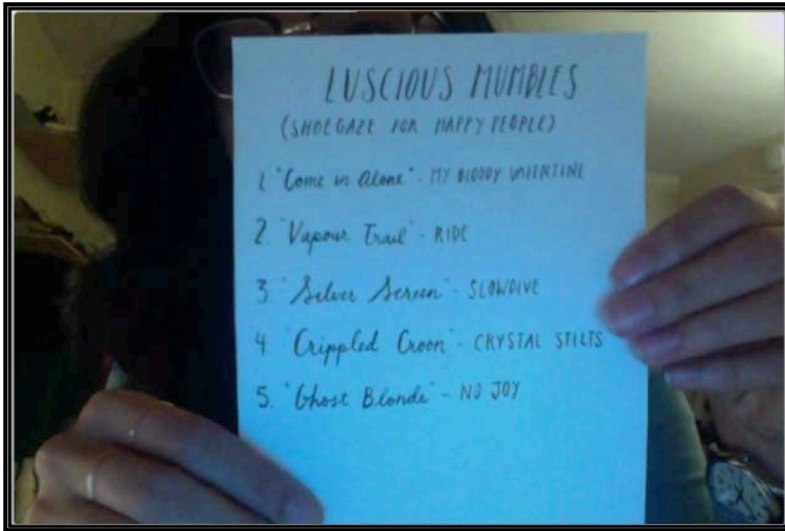
Figure 3. Danielle's Avatar. Danielle displaying her playlist as avatar.

Through recording, Danielle is able to create avatars of her own thoughts and conversations with others. These conversations are interpreted and synthesized through Danielle's perspective as a designer, illustrator, researcher, and teacher. By the time we get to her third and fourth reflections, Danielle has found an avatar format that she continues to utilize throughout the remainder of her reflections. She designs playlists that can be played to embody her mood and thoughts in relation to course content and fieldwork. These playlists become avatars within avatars that allow the viewer to perform Danielle's associations by finding and listening to the song.

In Figure 4, Tom begins his first video with a description of his interaction with my online avatar in the form of a learning module. Learning modules for Education Theory are online lectures, part of the flipped classroom format that provokes students to think deeply about a variety of learning and curricular theories through reflection and classroom experiences. The flipped classroom allows the teacher to place lecture/discussion-based material online and opens up the face-to-face classroom for experiential learning. Like the videos, the asynchronous nature of the module allows Tom to stop it part way through in order to process some of the information that he has encountered.

> I just got finished with half of module three and I thought I would take a break for a second and reflect on what has happened so far in the module. . . .I found it really fascinating to hear you discuss this rhizomatic structure and more of these non-linear organic crossing points for disciplines and knowledge and situations and experiences all culminating in one unit for reality. But [I am] also finding it really interesting that you are talking about Arthur Efland's Lattice structure as something that ivy can grow on as a way of describing underlying structure. I was thinking about what does the rhizomatic structure grow on and is it part of the root structure or is it what the root structure is growing on? (T.
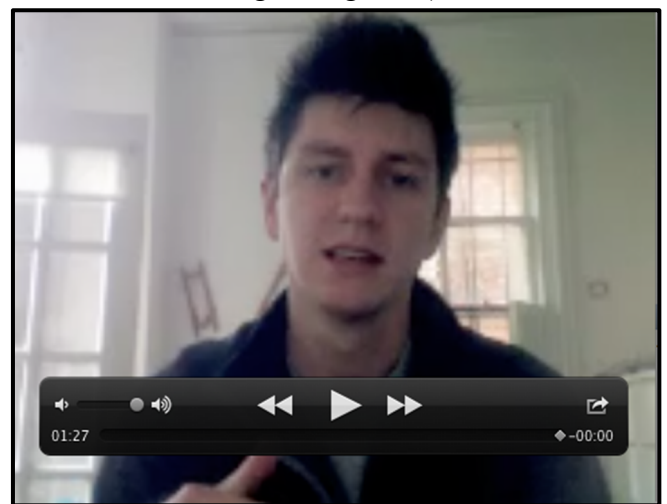

Figure 4. Tom's Avatar. Tom Doyle's avatar of his engagement with theory and practice.

Doyle, personal communication, October 17, 2013)

Tom discusses his understanding of complexity theory and the rhizome from both his readings and his viewing of the online module. This avatar serves as our point of entry into our discussion with one another and with the class as a whole. Tom ends with a question about underlying structure. He states, "I was thinking about what does the rhizomatic structure grow on and is it part of the root structure or is it what the root structure is growing on?" I wrote back the following to Tom on our social networking site:

Tom, this is a really interesting question. In terms of the rhizome, it grows on what is termed the plane of immanence. It is described as a smooth space that allows movement in all directions. . . .When you think about the creation of curriculum or a situation, you want to make a map, not a tracing. In relation to your question about the situation, I would say that the situation facilitates the growth. In the case of teaching, it could become the map by which students could territorialize and deterritorialize their knowledge. In other words, performance allows for the creation of a rhizome and growth in all directions. . . . (X, personal communication, October 17, 2013).

In reflecting on my own avatar, I can see that it took the route of efficiency over exploration. Instead of allowing Tom to discover on his own, my desire to see Tom arrive at a particular conception inhibited the process and limited the learning that may have been possible. What if I had given a series of links that allowed Tom to explore his own point of view in relation to this concept of structure? This hypertextual and exploratory method of teaching is one that requires a significant amount of time and patience from both parties.

In Tom's next video, he returns to the concept of complexity theory in relation to the feedback loop. He talks about reflection and iteration in relation to the artistic process. He asks the following question:

Is it simply a reflection of something . . . different . . . like the dual mirror image? Which . . . seem[s] kind of strange . . . the image is alternating . . . but . . . is ultimately stemming from the same origin rather than branching off . . . you are not doing again but you are doing with something else in mind." (T. Doyle, personal communication, October 17, 2013)

In a later video in the series, Tom talks about a field visit to the Greenmount School in X,X.

So we were at the Greenmount School today visiting Mr. X, and it was so amazing. We were talking with Mr. X and asking him about the importance of leaving Greenmount with a set catalogue of facts and figures; in his case, historical facts and figures. He kept reiterating this point: that he did not care about dates, but it was what was behind the date, and why that event happened that was so important . . . We were all

kind of startled . . . and curious about how a child could go through his or her education at Greenmount, and they would get the theme of, let's say . . . colonialism or maybe it is something about the Civil War in kindergarten, and since it is the whole school, kindergarten is tackling it in their own way and so is the opposite end of the spectrum age-wise which is 8th grade. So they are learning different pieces of it [the Civil War] and maybe getting the same feeling, but eighth grade is certainly getting more of these facts and figures and more . . . base knowledge. What we were . . . hung up on was that, what if you were that kindergartener who was . . . learning the Civil War . . . and you went to high school, and you would not have those facts and figures . . . (T. Doyle, personal communication, November 4, 2013)

Tom's description of his experiences at Greenmount exhibit not only his understanding of the theory in practice, but also his hesitation with some of the ramifications inherent to such a construct. He discusses both his and his classmates' shock and curiosity in relation to the lack of base or structure, such as facts and figures, upon which something is built. This is a return to his first video reflection as a form of feedback loop. Whether or not Tom was aware of this connection when he recorded this video is unknown.

However, the connection to his discussion of the lattice based structure is apparent.

> At the end of the day it seemed like Mr. X was seeing the Civil War kind of like we see an art material, where it is more than just its base. You know paint is not just a fluid medium that can be used, that . . .[can be] moved around with color and texture, and it means so much more innately. And that we use paint not to just show what paint is, but we use it as a means to get somewhere else and that seems to be the way that the Civil War is used at Greenmount. (T. Doyle, personal communication, November 4, 2013)

In relation to his statement about iteration in his second video, you can see that Tom is able to apply his understanding of artistic medium to his phrase "doing with something else in mind" to his analogy of paint and the Civil War as a medium. Each of Tom's avatars or incarnations of understanding adds a new dimension to his own personal learning process.

Conclusion

Through the use of cartography, networks, avatars, and performance as part of the assessment process, we can begin to make the invisible visible and at the same time perform that visualization. Utilizing networked cartography in the form of avatars allows educators, students, and peers to begin to document and assess growth over time as both formative and summative measures. Like Nathan Drake, we can begin to see the map of our charted curriculum.

Performance and visualization can take a variety of forms that extend student artworks. The videos in this article are but one iteration of how the learning process can be embodied as an avatar. Charts are often thought of as checklists rather than star charts or network architecture. Charting, as defined here, is about un-charting traditional notions of how curriculum is developed. Instead, it is a process of actively charting or mapping the paths taken, as students engage with a concept, idea, theory, process, etc., through exploration.

Students layer each of these learning fragments into a cohesive image that can be both interacted with and performed as a network as the evidence of their process. For art education this has tremendous implications. Instead of focusing solely on the art product as a way of understanding what students have learned, the process becomes an embedded part of the assessment. Performance and conceptually based artists have long understood the importance of process to the creation of artwork (Bourriaud, 2002). The recording of student avatars as blocks of reflection for re-visitation creates a map of student growth over time in relation to artistic and teaching practice and philosophy.

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