The Digital Museum: Learning through Interaction and Reflection

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Abstract

This paper presents the digital museum as an effective tool for learning. Using the example of a digital museum created in February 2021, the authors use autoethnography to demonstrate how this virtual reality location served both hosts and visitors of an interdisciplinary seminar in higher education that took place during the first pandemic lockdown in the Netherlands. The creation, visitation, and reflective evaluation of the museum formed three phases of learning that benefitted curators and guests who represented various disciplines and levels within higher education. Though generated by the physical restrictions of pandemic education, this example underscores the didactic value of the digital museum as a post-pandemic educational medium.

Keywords: Higher education; digital museum; curation; reflection; interdisciplinary.

1. Introduction

Studies on the effects of the transition from physical to online education during the COVID-19 pandemic have been largely critical. Across all levels of education, emergency measures to provide digital instruction raised a range of concerns, from the handling of data (Cone et al., 2021) to educational inequality (Evans, 2021; Werfhorst, Kessenich, & Geven, 2020) and the psychological effects of distance learning (Sahu, 2020). Accordingly, educators have responded to lockdown limitations by seeking creative alternatives for face-to-face instruction. Restrictions have generated new mediums of instruction which demonstrate didactical value beyond the context of the pandemic. One such medium, the digital museum, transforms social distancing into an asset. Transcending the boundaries of place and proximity, the digital museum provides a virtual space for interaction, reflection, and collaboration.

This paper will present a curatorial perspective of the digital museum as an effective tool for learning. Using the example of a digital museum they created in February 2021 (Minnaert et al., 2021), the authors will demonstrate how this virtual location served both hosts and visitors of an interdisciplinary seminar in higher education that took place during the first Dutch lockdown. Through autoethnography, the authors draw on curatorial experience, digitally archived chats, and student blogs to analyze the effectiveness of the museum in three phases. The creation, visitation, and evaluation of the museum form these three phases of learning for both curators and guests, underscoring the didactic value of the museum as a post-pandemic educational medium.

2. Description of the Museum

The interdisciplinary research group Subjects in Interdisciplinary Learning and Teaching (SILT) at Utrecht University hosted an online session in March 2021 as part of a seminar series within the transdisciplinary research platform "Transmission in Motion." The purpose of the session, entitled "Designing for Serendipity," was to explore the phenomenon of serendipity in interdisciplinary encounters. The session aimed to discuss questions like: "Do interdisciplinary encounters foster serendipitous connections and insights? Is interdisciplinarity boosted by serendipity?" and finally, "Is it possible to design and facilitate serendipitous encounters?"

Due to the COVID-19 pandemic, the seminar session was scheduled to take place online, like all other educational and research activities affiliated with Utrecht University in the academic year 2020-2021. The research group SILT felt challenged by the limitations of the digital medium: a meeting with lecturers, artists, students, and researchers, numbering from twenty to fifty in attendance, through the Microsoft platform, "Teams." A year into the pandemic, people were weary of digital interaction. SILT members agreed that an interactive structure

was key, while acknowledging that a live call involving a larger group provided a minimal range of interaction.

One of the authors, Toine Minnaert, suggested the use of an external digital platform, *artsteps.com*. *Artsteps* is a website where users can build and share free, three-dimensional, virtual reality platforms. The SILT group decided to curate a virtual museum through *artsteps.com* for the participants of the "Designing for Serendipity" seminar. Because the research platform Transmission in Motion is transdisciplinary, participants of the seminar would be representative of various disciplines. By inviting them to the museum space, the SILT group hoped to foster trans-, multi-, and interdisciplinary interaction. The group specifically curated the content of "the Serendipity Museum" to stimulate discussion about serendipity, but also to allow visitors to experience it.

Minnaert designed the architecture of the digital museum. The museum building consisted of four color-coded exhibition wings, distinguished by wall color. The blue exhibit was curated according to the theme "serendipity and academic debate." The red exhibit was curated according to the theme "serendipity and immersion." The green exhibit was curated according to the theme "serendipity and randomness." Finally, the yellow exhibit was curated according to the theme "serendipity and coherence in the random." Though the SILT group curated the exhibits according to these themes, the theme in each exhibit was not advertised in the museum itself.

In preparation for the seminar, members of the SILT research group assembled artifacts for placement in the museum. As the museum's primary architect, Minnaert placed these objects in the corresponding exhibit space. The objects varied in type and medium: images, texts, videos, QR codes, and instructions to carry out an activity. Each artifact was placed on a wall in the wing for which it had been selected. Examples of the exhibited objects are a link to the website "Forgotify," a screenshot of a Tweet quoting Anthony Fauci, a YouTube video of artist Karel Appel painting a canvas, and instructions for a game with dice.

After a brief plenary introduction to the subject of serendipity, the seminar participants were given the external link to the digital museum and invited to enter the virtual reality space and look around. The SILT seminar hosts explained that while visitors were wandering, channels in the Microsoft Teams platform would also be open for discussions. SILT members waited in these channels, which were color and theme-coordinated according to the exhibition rooms: green, blue, red, and yellow discussion channels. After an allotted timeframe for wandering and breakout conversations, the participants were invited to return to the plenary channel of the Microsoft Teams platform to conclude with a general discussion.

3. Curatorial phase: learning through creating

Curation is usually connected to the action or process of selecting, organizing, and managing the items in a collection or exhibition. Some argue that curation is indispensable in the recognition of a work as a work of art, and that consequently, the curator is more important than the artist. Others object to this so-called curatorial turn, rejecting its neglect of the intrinsic value and quality of a work of art (O'Neill, 2015; Wolff & Mulholland, 2016). A more general application of a curatorial strategy asks whether the meaning or value of an artifact is dependent on the context in which it is presented.

Pascal Gielen (2004) has developed a model to analyze and categorize artistic selection processes. At the basis of this model are two dichotomies: 1) singular versus collective regime and 2) content-based versus context-based logic. A translation of these dichotomies into axes results in four quadrants, each describing a curatorial strategy with specific criteria to substantiate the choices. When applying a singular context-based strategy, for example, the choice for an artwork is based on the author or artist, whereas a collective content-based strategy leads to a choice based on genre or style.

The use of both a curatorial strategy and Gielen's model in the preparatory phase of the SILT seminar triggered a lively discussion amongst the SILT members about the artifacts they wanted to include. As Campos and de Fegueiredo (2002) rightfully point out, there is a difference between programming serendipity (which seems contradictory) and programming *for* serendipity. The latter was clearly the case in this museum; the SILT team curated a space that would allow for serendipity to take place. Instead of thinking about key authors and concepts and how they would contribute to the desired narrative, this approach triggered the curators to let go of the linear narrative and think of ways to visualize a discussion on serendipity. Initially, SILT members collected a range of interesting artefacts connected to serendipity. Following the decision to work with four themed areas, the search for artefacts focused to create a balance between the four areas. There was a clear bias towards academic sources in the preliminary stages, but with time, practical examples emerged to complement them.

Because the digital format of the museum allowed for the inclusion of a broad range of media, it could be seen as a tool for developing metaliteracy (Mackey & Jacobson, 2011) and hypertext for non-sequential writing (Nelson, 1965). The interface of the virtual museum made it necessary to think in spatial terms about the relations between the various artifacts – just like in a physical museum. For example, the curators translated the conceptual opposition of two leading academic authors by placing videos of two different scientists on opposing walls. Spaces were structured in such a way that some were easy to miss. This provoked a situation in which visitors were unable to see all the artifacts in the allotted time, emerging from the museum with different stories.

4. Practical phase: learning through 'wandering'

Artsteps offers the possibility to design a guided tour and to determine the narrative for the visitors. Instead of paving the way for guests, the curators decided to fully embrace the idea of serendipity: the hosts 'dropped' the visitors at the entrance of the museum and let them wander around on their own. Unlike other tools for digital curation (see e.g. Ungerer, 2016), the virtual museum transforms the visitor into a co-creator and their wandering into a core activity. From a theoretical angle, this wandering could be loosely linked to what Guy Debord describes as the dérive (Debord, 1958). The dérive is both a solo and collective encounter in which people interact with features of a terrain. The dérive emphasizes the immersive aspect of the encounter, which is supplemented by the collective experience of wandering. The museum formed an effective tool for a collective activity, because every individual was required to act. Leaning back was not an option.

As mentioned before, the connection between the artifacts in the various color-coded blocks was clear to the curators. The curators did not explain this to the visitors, but visitors indicated in the discussion afterwards that the color-coding helped them choose where to wander (e.g. focusing on one or two of the blocks). Navigational skills were required to locate some of the artifacts. For example, a few people did not find the entrance to a secluded area that displayed a nature walk film. Likewise, those who stayed inside the museum missed the wishing well and other artifacts that were located outside.

The idea of wandering was also literally incorporated into the museum: on one of the outside walls of the museum, Minnaert placed a poem originating from the project *De letters van Utrecht*, by which a poem is carved into cobblestones in the city of Utrecht. One must walk approximately 100 meters to read the text, which – like the poem on the wall of the digital museum – is impossible to see in its entirety. Most visitors discover it while wandering through the city center.

5. Evaluative phase: learning through reflecting

Drawing on the testimonies of seminar participants, the curators evaluated the effectiveness of the digital museum as a tool for learning. These testimonies were archived through two mediums: the online discussion channel in the Microsoft Teams seminar forum and the weblogs written by students. Student participants corroborated these last perspectives in six essays written for the Transmission in Motion blog website in the weeks following the seminar. In the essays, students reflected on serendipity, the artifacts, and the digital museum as an intermedial, hybrid location. Because the discussion chats and the blogs were facilitated after the museum visit, the testimonies were reflective in nature.

As explained earlier, seminar participants were simultaneously free to wander in the museum itself, but also to wander into MS Teams break-out channels for discussion. SILT members facilitated conversations in these color-coded channels, which corresponded to colors of the exhibition rooms. The participants recognized the correspondence between the color of the exhibition room and the color indicated in the title of the break-out channel. Consequently, they began to discuss their experience in the "green room," "blue room," "red room," or "yellow room," depending on the channel they had joined. Also, they discussed their overall experience while wandering through the museum.

In these discussions, the chat, and the student blog entries, participants reflected on both content and form. On the one hand, the participants reflected on the artifacts in the color-coded exhibition rooms. What was the object? Why was it placed in that particular room? What did the object have to do with serendipity? How were the objects in the room linked with each other?

> One of the first exhibits…I encountered was a video of a famous expressionistic Dutch painter, in which he (at least seemingly) at random put down paint on a canvas. The video sparked a discussion amongst those in the 'green room' where the video was being exhibited; could we really speak of serendipity here? Was Appel truly painting *at random*, or was he actually applying some technique he had developed previously? (Everts, 2021)

On the other hand, participants reflected on the greater experience of wandering through a digital museum. How did they navigate through virtual reality? What did it feel like to facilitate movement through an avatar and the click and drag of a mouse? What museum details did they notice in the spaces between the exhibition halls? What did they see outside, if at all? Many connected the digital medium directly to the experience of 'serendipity:'

> My experience…was positive, even with a few glitches in my navigational skills. One profound value from this design lab was, in fact, my poor navigational skills. Somewhat serendipitously, I could not visit and reflect on all parts of the exhibition. (Tidball, 2021)

Testimonies also referenced past experiences in physical museums. What was it like to wander through the virtual space individually, while unable to physically interact with other avatars? How did this experience resemble a physical museum visit? How was it different?

> Visiting this online museum functions in a completely different way from visiting an on-site museum: one cannot see what lies in front, cannot freely turn one's head to see the walls in one glance. In this case, doing so requires close collaboration with one's computer and trust in the digital technology – trust that it will guide her through space in which visibility is highly limited. (Jakubiec, 2021)

Stevens and Cooper (2009) define reflection as "the engine that moves the learning cycle further along its path to further learning, action, and reflection" (p. 24). This definition underscores the value of the post-visit discussions and blog entries.

The wandering phase of the seminar was highly individual, that is, experienced with limited verbal or textual interaction between participants. This limited interaction reduced the function of the digital museum as a social "contact zone" (Clifford, 1997, p. 204). The post-visit reflections fulfilled this function, extending the museum experience into the breakout and plenary locations, but also into the blog website. Collective reflection after the museum visits provided a space for social contact that transcended physical distance and academic discipline.

Moreover, collective reflection stimulated the process of critical thinking and comprehension. Reflection prevented the visitor from being 'stuck' in the experience without gaining any new understanding" (Stevens & Cooper, 2009, p. 24). Dewey describes the reflective process as a means to "transform a situation in which there is experienced obscurity, doubt, conflict, disturbance of some sort into a situation that is clear, coherent, settled, harmonious" (Dewey, as cited in Stevens & Cooper 2009, p. 21). The post-visit reflections allowed visitors to exchange and evaluate any queries regarding the exhibition content or the virtual reality space, and to gain clarity or new insights.

6. Conclusion

The digital "Serendipity" museum served as an effective tool for learning during an interdisciplinary seminar in higher education that took place during the Dutch lockdown in 2021. The creation, visitation, and evaluation of the museum formed three phases of learning for both curators and guests, underscoring the didactic value of the museum as a post-pandemic educational medium.

The curatorial phase led to creative insights on how to present and facilitate the phenomenon of serendipity. Instead of presenting a linear narrative, the curators created a space filled with potential narratives. The emergence of these narratives was contingent on the active participation of visitors, making them 'co-creators.' By individually wandering through the museum, each visitor had a unique and serendipitous experience. Some of the participants sought a dominant narrative or a clear cohesion, whereas others fully immersed themselves in the serendipitous experience. The presence of both types of wandering provided a fruitful basis for evaluation. Participant testimony reflected on both content (serendipity) and form (the virtual museum as a tool). These insights affirm the value of the digital museum as a creative, visual, and participatory medium for teaching and learning, with or without the context of pandemic education.

References

Campos, J. & de Fegueiredo, A.D. (2002). Programming for serendipity. *Proceedings of the 2002 AAAI Fall Symposium on Chance Discovery-the Discovery and Management of Chance Events, AAAI Technical Report FS-02-01.* http://dx.doi.org/10.2139/ssrn.1385402

Clifford, J. (1997). *Routes, Travel and Translation in the Late Twentieth Century.* Cambridge, MA: Harvard University Press.

Cone, L., Brøgger, K., Berghmans, M., Decuypere, M., Förschler, A., Grimaldi, E., Hartong, S., Hillman, T., Ideland, M., Landri, P., van de Oudeweetering, K., Player-Koro, C., Bergviken Rensfeldt, A., Rönnberg, L., Taglietti, D., & Vanermen, L. (2021). Pandemic Acceleration: Covid-19 and the Emergency Digitalization of European education. *European Educational Research Journal*. https://doi.org/10.1177/14749041211041793

Debord, G. (1958). Theory of the Dérive. *Internationale situationniste,* 2.20.05.

Evans, Y., Hutchinson, J., & Ameenuddin, N. (2021). Opportunity, Challenge, or Both? Managing Adolescent Socioemotional and Mental Health During Web-Based Learning. *JMIR mental health*, *8*(9), e26484. https://doi.org/10.2196/26484

Everts, D. (2021). *Serendipity and Kairos in Human and Machines*. Retrieved April 24, 2022, from https://transmissioninmotion.sites.uu.nl/serendipity-and-kairos-in-humans-and-machines-daniel-everts/

Jakubiec, J. (2021). *Serendipitous Working: Discovery and Respect.* Retrieved April 24, 2022, from https://transmissioninmotion.sites.uu.nl/serendipitous-working-discovery-and-respect-justyna-jakubiec/

Mackey, T.P., & Jacobson, T.E. (2011). Reframing information literacy as a metaliteracy. *College & Research Libraries 72(1)*, 62–78.

Minnaert, T., Hacopian, A., Domen, I., Kustritz, A., Sterk, F., van der Tuin, I., van Goch, M., van Lambalgen, R. & van Woerden, R. (2021). Transmission in Motion - Designing for Serendipity. Retrieved from https://www.artsteps.com/view/6013c91f3aef2a31ac5c4787

Nelson, T.H. (1965). Complex information processing: a file structure for the complex, the changing and the indeterminate. *ACM '65: Proceedings of the 1965 20th national conference*, August 1965, 84–100. https://doi.org/10.1145/800197.806036

Sahu, P. (2020). Closure of Universities Due to Coronavirus Disease 2019 (COVID-19): Impact on Education and Mental Health of Students and Academic Staff. *Cureus* 12(4): e7541. doi:10.7759/cureus.7541

Stevens, D.D. & Cooper, J.E. (2009). *Journal Keeping. How to Use Reflective Writing for Effective Learning, Teaching, Professional Insight, and Positive Change.* Sterling, VA: Stylus.

Tidball, N. (2021). *Eco Art and Serendipity*. Retrieved on April 24, 2022, from https://transmissioninmotion.sites.uu.nl/eco-art-and-serendipity-naomi-tidball/

Ungerer, L. M. (2016). Digital Curation as a Core Competency in Current Learning and Literacy: A Higher Education Perspective. *International Review of Research in Open and Distributed Learning, 17(5)*, 1–27. https://doi.org/10.19173/irrodl.v17i5.2566

van de Werfhorst, H. G., Kessenich, E., & Geven, S. (2020, August 18). The Digital Divide in Online Education. Inequality in Digital Preparedness of Students and Schools before the Start of the COVID-19 Pandemic. https://doi.org/10.31235/osf.io/58d6p

Wolff, A. & Mulholland, P. (2013). Curation, curation, curation. *Proceedings of the 3rd Narrative and Hypertext Workshop (NHT'13)*, Paris, France, May 1-3, 2013, 1-5. https://doi.org/10.1145/2462216.2462217