Supplementary Materials "Student Assistants as Mentor-Participants"

1 COURSE CONTENTS AND CONTEXT

Living Pasts is a transdisciplinary co-design course at Utrecht University, the Netherlands, that challenges students to bring history to life by exploring new forms of historical storytelling through media and technology. By combining historical, architectural and societal data, students from the faculties of Science, Humanities, Geoscience, and University College Utrecht develop and design an innovative application for the city of Utrecht. This goal is purposefully broad to allow any student enrolled in the course to find an angle of interest within these design boundaries. During ten weeks of challenge-based learning, students learn how to cooperate across disciplinary boundaries, take charge of their own learning process and experimentally assess the added value of new media and ICT. The first iteration of the course was taught in 2019; we report on the second iteration (2020-I). As of writing (November 2023), there have been 8 iterations of the course in total.

Living Pasts builds on principles of co-design. We were inspired by Healey et al. (2014), who advocates for students as *partners* in higher education, emphasising agency and interdependence of students and teachers in determining the curriculum and the social contract. In extension to co-design, Living Pasts can also be regarded as a driver for entrepreneurial pedagogy, which attempts "to enhance competencies for entrepreneurship amongst students by giving them more autonomy and responsibility in the learning process through experimental, collaborative and reflexive learning" (Hofer and Kaffka, 2018, p. 138). Or, as Windeløv-Lidzélius (2018) phrases it in the context of Kaospilot, a search to develop "a learning environment in which [students] can move themselves towards new learning, rather than be directed as such" (p. 88). Our course is also informed by distributed leadership literature, which poses that "leadership is not a static state connected to a person holding a specific office or position. Depending on the situation, we may alternate between performing leadership activities and behaving like a follower" (Kessels, 2013, p. 4; also see Hulsbos et al., 2012). For distributed leadership to emerge, students need to feel that they are part of a mutual process rather than a hierarchy. In our course we distinguish two layers of co-design: co-design of the course itself (i.e., choice of guest lecturers and assessment) and co-design of the design products. In this work, we will primarily focus on the latter category as well as the project support structure required to facilitate students in this process.

The 2020-I course started with a hands-on introduction to co-design, two crash courses in social geography and anthropology, and an assignment in which students went out to map one location in the city (i.e., to research it spatially). In the first half of the course, students set their personal learning goals (in addition to the course learning goals), got acquainted with the local archives, and were introduced to technologies such as linked data, branching narratives and optical character recognition, as well as several closely related disciplines (such as earth sciences and science communication). During this time they also further polished a mapping assignment wherein they researched and formulated a target audience, found stories to tell, and determined the most appropriate storytelling medium. We also invited several stakeholders across the city – such as the local archives, municipality, historical magazine and citizen initiatives – who could offer feedback and share their vision on how to revitalize Utrecht's history.

The second part of the course was fully project-focused, working towards a final product and presentation. To use design for academic purposes, we were informed by Design-Based Research (see Bakker, 2018). More generally, we use design methods and tools from the field of human-computer interaction (see Buxton, 2007), introducing students to conceptual tools such as design cycles and the Double Diamond method. To support collaboration, we also offered a workshop on time & project management techniques. The final products by the three teams were: *Taste of Time*, a virtual history of local cuisine; *Past Reality*, a VR experience visualizing important events connected to a major city square; and *Under the Lime Trees*, a visual novel set during World War II (each of which is publicly accessible; Living Pasts, 2020). Students wrote an academic article (or negotiated alternative formats) and reflected on a salient aspect of their learning journey. As a capstone to the course, the article allowed them to share their new insights with a broader audience.

SAs play a principal role in supporting students and co-designing the course with guidance of university professors (i.e., instructors). Instructors have final responsibility over the course and create clear boundaries through course structure and design. They mentor SAs by checking in regularly and being part of primary course processes. Plus, we determined that only instructors may set a final grading. From 2020-I onward we set our sights to have at least one former student in the SA team as a way to maintain continuity between consecutive course iterations. In 2020-I, two out of three SAs had already facilitated the 2019-II iteration and one was a former student.

A week after the course switched from guided sessions to the project phase, COVID-19 policies and interventions forced us to switch from the classroom to Microsoft Teams, a multi-channel video conferencing and chat tool. Instead of having a facilitator support the entire class as was done before, each group was assigned one SA as a coach. This close proximity to group processes shifted SAs’ role to *mentor-participants*, where they took more agency in co-deciding the agenda, asking critical questions, steering the process whenever necessary, monitoring the timeline, and (to a reasonable degree) contributing to design and implementation work. In this paper, we reflect on how this role change led to a rewriting of the social contract.

With regards to more general changes to the course after COVID-19 measures, we also organised weekly online stand-up sessions in which each team shared their progress with the rest of the group. Likewise, the final session was originally planned to be an on-location demonstration for stakeholders, but turned into an interactive live stream. This livestream and further information on the course are accessible on the course website (Living Pasts, 2020).

2 STUDENT LEARNING OUTCOMES (SLO)

After this course, students are able to:

1. *design an optimal cultural heritage application by searching and selecting appropriate information sources, methods, expertise and coaching, based on the needs for knowledge and skills;*
2. *structure their personal learning journey using SMART criteria, by setting, implementing, and evaluating personal learning goals;*
3. *cooperate effectively with other disciplines, validating heterogeneous data across different domains;*
4. *determine and reflect in an academic and entrepreneurial way on societal challenges related to cultural heritage;*

5. *determine the needs of one or several target audiences and fulfil these needs through design-based research;*
6. *make a prototype for a concrete product fitting the needs of one or several target audiences;*
7. *assess the added value of new media and ICT and effectively operationalize these.*

3 PROTOTYPE RUBRIC 2020-I

3.1 CONGRUENCY OF FORM, CONTENT AND TARGET AUDIENCE

SLOs 1, 5, 6, 7

- The **target audience is clearly defined and catered to**:
  - There is a good match between your target audience, the medium (e.g., pupils would not enjoy a 500-page book to read) and the subject matter (e.g., pupils would not enjoy jargon-filled academic discussions);
  - The project is ready to be pitched to your target audience.
- You **got the most out of the chosen medium:**
  - There is a good match between the story you want to tell and the medium you use;
  - You make a strong argument for your design decisions.

Inadequate: The choices for form, content and audience were uninformed and/or incoherent.

Adequate (60%): While each aspect was a reasonable part of the discussion, the aspects were not convincingly interlinked or the final product did not embody their interplay convincingly.

Good (80%): The form of the prototype, its content and target audience – as well as their interplay – were duly discussed and the final implementation reflects this.

Excellent (100%): The form of the prototype, its content and target audience were in continuous dialogue with each other throughout the process, and this interplay was proactively and repeatedly examined and documented by the group.

3.2 DATA AND LITERATURE USE

SLOs 1, 3, 4

- **Sources are used extensively**, and are properly validated, credited and interpreted:
  - Sources are incorporated in way that suits the chosen medium.
- **Copyrighted materials are dealt with properly:**
  - These are only incorporated in the implementation with permission;
  - You very clearly state which assets were created by you, and which were retrieved elsewhere, both within the application as within the archive.
- You make it **clear to your users what the veracity is** of provided content:
  - I.e., is a statement or asset (almost) certain, uncertain, disputed, or fictional?

Inadequate: Students failed to source their claims, or failed to ground their work in history (i.e., only using fiction).

Adequate (60%): Students validated and referenced data to back up their claims, but did not sufficiently cross-validate or otherwise justify their work.

Good (80%): Students used multiple sources to cross-validate their claims, to a level expected for a publication in the field in question.

Excellent (100%): Students used innovative techniques to validate data, either at scale or in depth. The archive offers methodological discussions that would (almost) be suitable for publication, or could be / were turned into tutorials.

3.3 DESIGN PROCESS AND DOCUMENTATION

SLO 2

- The **design process was set up thoughtfully:**
  - You used project and time management techniques to make the best of the available time together;
  - You struck a good balance between ambition and feasibility;
  - You critically reflected on the collaborative process (as a team).
- The **design process is well-documented in the archives**, and includes:
  - Clear (SMART) requirements for the prototype;
  - All feedback you have received (through any channels);
  - Documentation of all your work, including (perhaps especially) failed attempts and reflections on why design choices succeeded or failed;
  - Elaborations on how the project can be fruitfully continued (i.e., a future work section):
    - Determine who would steward your project in the future and its position in the market.

Inadequate: Students did not document their work process at all or very poorly. The design process was haphazard.

Adequate (60%): Students documented their work process, but there are notable gaps. Their design process was not focussed.

Good (80%): Students documented their work process without notable gaps. Their design process was well-planned and reflected on.

Excellent (100%): Students documented their work process and archived everything according to FAIR principles. Their design process allowed a high standard product to be delivered within the time frame.

3.4 INNOVATION

SLOs 4, 6, 7

- You make a **worthwhile contribution academically, entrepreneurially, or societally**.

Inadequate: Students did not attempt to do research or innovate on previous work.

Adequate (60%): Students made a genuine attempt at innovating on previous work, delivering incremental contributions to it.

Good (80%): Students deviated from previous work and co-designed medium-fidelity prototypes to test their ideas.

Excellent (100%): Students came up with an ambitious vision given the time allotted and succeeded in implementing a high-fidelity prototype. It would be worthy of sharing at an academic conference or in a pitch to an investor/steward.

3.5 EVALUATION

SLOs 5, 6

- You **evaluated your design product** to a reasonable extent - does it achieve the goals you have set for it?
  - Note that you will be graded on the quality of your evaluation and not on the opinions of your test panel.

Inadequate: No evaluation was performed.

Adequate (60%): An informal evaluation was performed with friends without clear protocol or adhering to other scientific standards.

Good (80%): Students tested their ideas in a structural way with participants who are representative of the target audience.

Excellent (100%): Students tested a high-fidelity prototype with a larger sample of their target audience and did so structurally and deliberately. Their work is (almost) suitable to be published in a peer-reviewed paper.

3.6 REPORTING STYLE & PROTOTYPE PRODUCTION VALUE

Added by request of students 2020-I

- **English was used correctly** (grammar, spelling) **and effectively** (style figures, using rhetorical principles). This refers to both the prototype itself as any documentation in the archive.
- There is a **harmonious visual and aural style**, with fitting assets (image, video, audio) in the prototype.
- The **narrative structure is coherent** in the prototype.

Inadequate: Poor use of English, there is no consistent art style, and media were (needlessly) recorded with low-quality equipment. In short, you would not even dare put this as an illustration in a blog post.

Adequate (60%): Moderate writing style, with grammar and spelling mistakes numbering more than one per page/minute. Media use and style are pragmatic, but not harmonious.

Good (80%): Good writing style, showing good command of the English language, not more than one minor grammar or spelling mistake per page/minute. Media use and style are persuasive and fit together well.

Excellent (100%): Impeccable use of English and the all media were produced to be consistent and polished. In short, this product could be sold as-is.

3.7 BONUS POINTS

These are some ways you can go beyond the above descriptions - you can always check with us if we think it would warrant bonus points. These would be added on top of your (averaged) score in the previous categories.

- Conduct a market analysis prior to developing the product.
- Actually pitch your project to your target audience and write a report on their responses.
- Collaborate with societal partners to create a product that they can employ in practice.
- Engineering or making use extensively of existing data standards to ensure interoperability.

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