

Nomadic education in localized MOOC (LOOC)

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There are two paradigm within MOOC, xMOOC and cMOOC[1]. xMOOCs are organized according to a canonical order while cMOOCs are based on connectivism [2]. Connectivism is a learning theory based on the hypothesis that knowledge is created when students interact with the material and peers. Malmö University welcomes a divergent student group and cooperation with the community. From this arose the idea of mixing the openness of MOOCs with cooperation with the local business community. MOOC converted to LOOC (Localized Open Online Course), a course for the local business community with all the attributes of a MOOC but mainly in Swedish. The subject of the course is the C++ programming language as we discovered that there was no suitable C++ MOOC for people who already know object oriented programming. Active developers do not want to study a C++ course from beginning to end, they want to study just the parts they need, depending on what knowledge and experience they already have. The research question we have explored is how and in what way the course structure should be visible, i.e., how to design a course that enables the students' to begin anywhere in the material and create their own individual path to understanding.

Researchers argue for both linear [3] and a non-linear teaching materials [4, 5]. Laurillard et al. [3] state that it is beneficial for learning to have common thread, a story, in computer-based teaching materials [3] and Semetsky [4] advocates "nomadic education" where one can begin the learning process at different points depending on need and current knowledge. The linear order of knowledge was challenged early by poststructural thinkers such as Guattari and Deleuze [6], which introduces the "rhizomatic thought". They criticized the western philosophical and scientific image of the thought. They describe this image as a tree where the thoughts start at the root and the branches evolves in controlled decisions, in a regulated space, resulting in dualistic thinking [6]. Semetsky [4] takes the idea of the rhizomatic thought to theories of teaching and introduces the term "nomadic education" which is based on the idea to break up a given order in the learning process. Depending on current knowledge the student can begin the learning process at various points and new questions are generated. Transitions between points is not given from the start but follows the student's associations in diverse directions.

Laurillard et al. [3] points out that traditional media for learning (lectures, books) have a clear linear narrative structure. The authors claim that a non-linear medium, invites the students to unstructured surfing leaving the students unengaged in the material. A linear story through the non-linear material increases affordance and thus learning. A cMOOC can be seen as a medium of non-linear learning resources. Laurillard et al. [3] see non-linear learning resources as a problem, but we chose to see cMOOCs as a possibility to implement Semetsky's [4] idea of nomadic education and at the same time make it easier for students to

independently find the common thread that Laurillard et al. [3] advocates. It is therefore possible to start wherever the students want in our material and then follow recommendations of what lessons to study. It is also possible to deepen the learning by following external links. The course is built around twelve core concepts of C++. Each concept consists of one to five lessons and a quiz.

The course is visualized by a graph (Figure 1) where the various core concepts are represented as nodes. The nodes are interconnected to illustrate how the various concepts relate to each other. The core concepts are colour coded to further reinforce how the lessons are related. When the student enter a lesson he or she is guided by the links in the right margin, to other related lessons that could be beneficial to study in parallel with the current lesson.

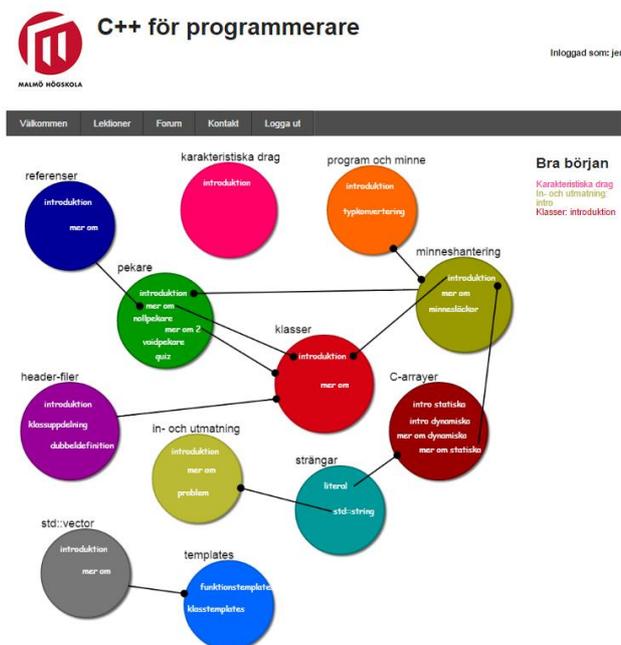


Figure 1. Course graph

The course structure was pre-evaluated in a study with two test groups with a total of 30 students in two campus courses. The first group consisted of second year students from the game development program with no knowledge in C++. The second group consisted of both students who were beginners in C++ and those who had some knowledge. The students had different backgrounds in object oriented programming. C++ is applied in both courses but the students are expected to learn C++ with minimal teaching. This year the LOOC were used to support the students in their transition into the C++ programming language. In the first lecture, the students were presented an overview of the LOOC, then they got a C++-assignment to solve individually while using the LOOC.

To evaluate the course structure we chose questionnaires and semi-structured group interviews. When the students had worked with the course for one week, they were asked to

answer a questionnaire. The questionnaire consisted of both closed-ended questions of type Yes/No and open-ended questions. The closed-ended questions were used to identify how effective the material is, learning how much the material was used, in what order the students studied the core concepts, and for how long each student used the material. The questionnaires were handed out on paper during a lecture and the students answered the questionnaire anonymously (seven students from group one and 23 students from group two). The answers were compiled and acted as input to the group interviews.

Result:

- Tree students perceived it easy to follow the connections in the course graph and find their own way through the material,
- twelve students said that they were confused by the course set-up,
- eight students thought the basic idea was good, but the visualization was somewhat unclear, and
- seven students did not comment the visual representation or the structure of the course material.

Based on our research question and the results of the questionnaire themes for the group interviews were formulated. The purpose of the group interviews was to deepen the knowledge on the themes distilled from the questionnaire. According to Cohen et al. [7] discussion can bring out the groups view on the highlighted focus; in this case how the visual representation of the course works and how the students perceived the content. The interaction between the participants is central and also how the moderator facilitate discussions. The semi-structured group interviews consisted of the same students that answered the questionnaire. The students was invited to reflect upon the course structure and the course graph, and the moderator kept the discussion going by highlighting issues from the questionnaires, for example how the students perceive the lack of a predefined path. The interviews revealed that many students perceived the course structure confusing as they

could not find the “correct” way on their own and some students found the idea good but they did not explore the relationships between the core concepts.

The result shows that 20 of 30 students experienced it confusing to be forced to choose their own path to understanding. This provides evidence that students prefer to have a given path to relate to, which is in line with Laurillard et al.'s research [3]. Mackness et al. [5] emphasizes, however, that students unaccustomed to MOOCs often like to see a more linear structure. Mackness et al [5] also describes how the students over time, with the help of teachers and more experienced MOOC students, become more secure in the situation. An interesting aspect to consider is whether it is the students' previous experience, habits and expectations of university courses that make them unsecure when they are given the control over the material and if professionals, who are the target audience for the LOOC, is more likely to trust their own ability to choose their own path to knowledge. Another question is whether the course material could be visualized in a different way for students to feel confident that their way is the "right thing". These questions will form the basis for further research on nomadic education.

REFERENCES

- [1] J. Daniel, “Making sense of MOOCs: Musings in a maze of myth, paradox and possibility”, *Journal of Interactive Media in Education*, vol. 3, 2012.
- [2] S. Downes, “Connectivism and connective knowledge: Essays on meaning and learning networks.” National Research Council Canada, 2012.
- [3] D. Laurillard, et al., “Affordance for learning in a non-linear narrative medium” *Journal of Interactive Media in Education (JIME)*, 2000 (2).
- [4] I. Semetsky, “Deleuze's new image of thought, or Dewey revisited” *Educational Philosophy and Theory*, vol. 35, no. 1, pp. 17-29, 2003.
- [5] J. Mackness, et al., “Learning in a small, task-oriented, connectivist MOOC: Pedagogical issues and implications for higher education” *The International Review of Research in Open and Distance Learning*, vol. 14, no. 4, 2013.
- [6] G. Deleuze and F. Guattari, “A thousand plateaus: Capitalism and schizophrenia” Bloomsbury Publishing, 1987.
- [7] L. Cohen, et al., “Research methods in education”. Milton Park, Abingdon, Oxon, England: Routledge, 2011.