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Interaction in Massive Courses

J.UCS Special Issue

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1 Introduction

Traditional lectures, especially when given to large audiences, are characterized by a prevalent passivity of students as well as reduced interactions between the lecturer and the audience. For some years, research has been devoted to exploring how new media can be harnessed to support and promote collaborative activities in large learning groups. Prominent applications or systems that have gained much attention include social media such as Wikis, Twitter and Facebook for (informal) information exchange [Siemens, 05], as well as Audience Response Systems (ARS) for playfully assessing students' retention and attention during lectures.

On the other side, investigation of the capabilities of Technology Enhanced Learning (TEL) led to the development of Massive Open Online Courses (MOOCs) capable of providing several ten thousands of learners with access to courses over the web [McAuly, 10]. MOOCs have recently gained much attention especially in the US and are now often considered a highly promising form of academic teaching [Pappano, 12]. While the figures are impressive, MOOCs have yet to become subject to sharp debates criticizing among other the educational approach, vague business models, and the very drop off of MOOCs attendees. However controversial MOOCs may be, they strikingly show the potential of social and/or new media to fundamentally change higher education. (Face-to-face) Lectures may no longer primarily serve the purpose of disseminating information, which can be easily retrieved from Wikis or online courses at any time. They may instead focus on the deeper elaboration of learn-

ing materials, albeit in large groups, putting high demands on interactions among learners as well as faculty and scholars.

Nevertheless, regardless of whether the courses are offered online (MOOC) or in the traditional face-to-face manner, new information is nowadays often presented and delivered to a mass of students. Thereby the individual learning process is largely disregarded and the interaction among students, as well as between students and lecturers, is reduced down to asking few questions. There is a long tradition in research of learner-lecturer interaction in huge classrooms [Bligh, 71] [Gleason, 86]. Anderson et al. [Anderson, 03] which pointed out the problems of such situations and summarized that there is a lack of feedback (only few response of learners during a lecture), a fear to ask questions in huge classes (students' apprehension), and a typical single-speaker-paradigm. Due to the fact that learning is a strong social and active process which proceeds by and through conversation [Motschnik-Pitrik, 02] and interaction [Preece, 02], this is exactly this topic that we would like to address with this Special Issue.

2 Special Issue on Massive Interaction

The Special Issue aimed to gather research works in the field of massive courses with a special focus on enhancing interaction between lecturers-students or students-student in face-to-face situations or completely online by using different kind of technologies – for example, some few information systems created some years ago, summarized unter the term "Audience Response Systems" (ARS). With such systems, students are able to make votes on lecturers' questions by using mostly special hardware [Anderson, 03]. Other possibilities are the use of Web 2.0 technologies [Purgathofer, 08] or Social Media [Ebner, 11] [Bry, 13] to enhance students' engagement in live-lecturing-situations. In the recent years, the above-mentioned MOOCs attracted the interest of thousands of students. Obviously this leads to new challenges on how to overcome the management of a huge number of occurring interactions and calls for new strategies [Khalil, 13a] [Khalil, 13b].

Assuming that rich interactions in large groups of learners are critical to the development of academia, this Special Issue of the Journal of Universal Computer Science is dedicated to research work on media fostering interaction in massive courses.

Suggested topics of this special issue included (but were not limited to) the following:

- Information Systems with a special focus on interaction in large classes
- Audience Response Systems
- Field studies about interaction in large learning groups
- Interaction in massive courses (presence and distance learning)
- New and Social Media use in classrooms for enhancing interaction
- Concepts, scenarios and technologies supporting collaboration and information sharing in scope of massive courses.
- Strategies, techniques and technologies fostering peer to peer learning and community building in massive online courses
- Implicit knowledge discovery and recommender systems for enhancing collaborations within massive online courses

- Human-Computer-Interaction (HCI) concepts to enhance interactions in massive online courses
- Literature reviews on interaction in large learning groups, e.g. MOOCs
- Position and vision papers

3 Contributions of the special issue

The special issue got huge attention due to the fact that MOOCs can be seen as big trend or hype these days. Nevertheless a careful peer-review-process reduced the number of contributions to finally five:

3.1 Proposal for a Conceptual Framework for Educators to Describe and Design MOOCs

The first contribution aimed to point out a conceptual framework for doing a MOOC. The authors provide support to educators when designing or describing their online course by suggesting the so-called MOOC Canvas. The MOOC Canvas defines eleven interrelated issues that are addressed through a set of questions, offering a visual and understandable guidance for educators during the MOOC design process. Finally a practical example is given how the canvas is used.

3.2 Adapting an Awareness Tool for Massive Courses: the Case of ClassON

In this contribution an awareness tool for massive face-to-face education is introduced. The architecture as well as features of the tool are described and discussed. It is concluded that such tools helps to increase massive education.

3.3 Developing a Web-Based Question-Driven Audience Response System Supporting BYOD

The authors of this research work introduce a new Audience Response System addressing the new trend BYOD (Bring Your Own Device). Students can use their own (mobile) devices to provide answers to online-questions of the lecturers. After a careful analyze of existing possibilities a new system was developed and evaluated in huge classrooms.

3.4 Toward Project-based Learning and Team Formation in Open Learning Environments

The final contribution is dealing again with MOOCs. The authors address one of the weaknesses of pure online courses – the lack of collaborative learning opportunities. In this research work a suggestion for an automated service for the initiation of project-based learning and team formation is given. On the basis of a survey a solution how such service can be done in future is pointed out.

4 Program Committee

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