

The Sociotechnical Learning Object Slam Happening

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ABSTRACT

Teaching sociotechnical concepts requires insightful, effective and engaging instructional resources suitable for students of various levels. The authors propose an interactive Alternative Event, the Sociotechnical Learning Object Slam Happening (SLOSH), in which participants will design and then present prototype sociotechnical learning objects. Discussion will be initiated regarding requirements for an online SLO Repository.

Categories and Subject Descriptors

H.m Information systems; miscellaneous

Keywords

instruction, learning object, learning object repository, pedagogy, slam, sociotechnical

1. INTRODUCTION

A slam is an interactive event in which participants present creative work to an audience for judging and feedback. The authors propose an iConference Alternative Event, the Sociotechnical Learning Object Slam Happening – SLOSH. The SLOSH will focus on the creation and delivery of sociotechnical learning objects (SLOs) for effective classroom use. Presenters and invited guests will briefly introduce sociotechnical theory and learning objects, and illustrative examples from their own teaching. Following break-out time to create prototype SLOs, participants will share these in short presentations for quick feedback and comment. The slam format will emphasize SLO delivery as well as content, a useful parallel with the classroom. Discussion will also be initiated regarding the need and requirements for the development of a SLO Repository (SLOR).

1.1 Sociotechnical Theory

Sociotechnical theory analyzes the use of technologies (such as information technologies) and holds that technologies cannot be analyzed separately from the social contexts in which they are used. Technological and sociological factors are mutually constitutive, and interact to produce complex and emergent outcomes. Sociotechnical phenomena are at the heart of information-centric studies and practices, and involve individuals in organizations and other social groups, along with infrastructures and technologies [1, 5, 6].

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Methodological approaches employed in sociotechnical studies include user-centered and interaction design, ethnography, discourse analysis, etc. Many information society issues are amenable to analysis by sociotechnical approaches, including issues with information system adoption (such as the ‘productivity paradox’), gender and technology, computer supported collaborative work, online privacy, mobile device etiquette and legislation (e.g. texting and driving), the digital divide, and others.

Teachers of the sociotechnical often teach to students with little background in sociotechnical studies, or experience with design. Teaching sociotechnical concepts requires insightful, effective and engaging instructional resources suitable for students of all levels. Theory, methods, concepts and abstractions applicable across multiple contexts and technologies may only be understood by a novice through a good worked example. Unfortunately an example that is helpful for one student may not provide insight for another. Consequently it is useful to have a repertoire of examples, case studies, learning activities, metaphors, group projects, in-class experiences and homework exercises that can be selected and tailored to the particular pedagogic need of a given group of students or even an individual student.

Identifying and developing relevant sociotechnical instructional resources, relating them to existing lecture and curriculum needs, and developing and testing scaffolds that make the resources meaningful, can be very time consuming for busy faculty. There is a need for a pool of educational resources that take sociotechnical concepts and principles and translate these into exemplary, engaging, agile, proven-in-practice instructional resources.

The authors therefore propose an iConference Alternative Event to promote the creation and sharing of Sociotechnical Learning Objects (SLOs). Learning objects are ‘any entity, digital or non-digital, which can be used, re-used or referenced during technology supported learning’ [4]. They can include multimedia content, instructional content, learning objectives, and instructional software and software tools, and other resources. SLOs should be structured to include descriptions of specific learning goals and outcomes (for instance, describing how to use the GapMinder online tool [3] to support students to investigate and understand the digital divide, and how to measure that understanding). SLOs can include research experiences that support students to ‘understand by doing’ (for instance, instructing students to observe and analyze an IT implementation in an organizational setting they are familiar with, and to identify changes in organizational practices). SLOs can be integrated into larger modules and themes (for instance, by using sociotechnical concepts and methods to inform the stages of a user-centered design process over the course of a design class). SLOs can be used to introduce sociotechnical research methods, for instance through an ethnographic observation in a public library. Finally,

SLOs can support ‘just in time’ professional development [7], providing educational excellence while supporting instructors to deepen and broaden their own understanding.

A set of SLOs are not some magic bullet, guaranteed to effect sociotechnical insight in the perplexed. But a set of useful resources can be selected and tailored by an instructor to help facilitate the understanding of intrinsically challenging and often counter-intuitive concepts. We believe that sharing and refining each others’ resources can help us all be more effective teachers and enable a wider constituency of students to understand the critical importance of sociotechnical analysis and design for building systems and infrastructures that people can actually use productively.

1.2 Organizers

SLOSH brings together a group of sociotechnical scholars with wide-ranging interests in sociotechnical research and teaching. Michael Khoo teaches human-computer interaction to undergraduates and graduates, and an undergraduate course on social aspects of information systems. Michael Twidale teaches graduate and advanced undergraduate level courses on human computer interaction, entrepreneurial IT design, and museum informatics as well as doctoral seminars in CSCW and rapid prototyping and evaluation. Andrea Wiggins has teaching experience in courses on the design, management, and use of information systems in organizational contexts, including science data management and distributed collaboration technologies. Jennifer Rode has teaching experience in courses on human-computer interaction focused on interface design, usability, design ethnography and cognitive psychology for HCI.

1.3 Participants, Agenda and Activities

SLOSH will be of interest to those invested in exploring, developing, sharing and improving sociotechnical instruction at all levels and in all contexts. This includes people teaching or planning to teach a course with a distinct sociotechnical focus, likely concentrating on analysis, design or a combination of the two. It also includes people who may wish to incorporate some sociotechnical design thinking into a pre-existing course that focuses on another topic, and so need approaches that do not consume excessive amounts of available teaching time. The audience will be encouraged to think about the SLOSH theme ahead of time, and to come prepared to develop and present SLOs based on their favorite sociotechnical themes and resources.

SLOSH will be structured to be fast-paced, interactive, creative, and to promote significant audience participation. Prior to the happening, we will create a space on the CSST wiki [2] outlining the aims, agenda, and activities of the SLOSH. This will include some examples of SLOs to serve as inspiration, and a set of ‘learning needs’ or ‘pedagogic requirements’ to solicit the development of multiple SLOs to address these needs. One such need might be “examples to help a student with a strong engineering background understand why a problem needs a sociotechnical solution and not a purely technical solution”. Another might be “activities to help a student with minimal design background become comfortable with proposing and justifying sociotechnical design modifications.”

The SLOSH will begin with a brief introduction outlining the context of need, an overview of learning objects and just-in-time professional development as instructional strategies, and an outline of some requirements for the character and nature of engaging sociotechnical learning objects (SLOs). Examples of SLOs will be introduced by the organizers in a restricted-time presentation format (e.g. pecha kucha or Ignite). Participants will be briefed on the use of the CSST wiki for uploading their draft SLOs. Participants will then be given instructions, and will be let loose to design their own SLOs, either individually or collaboratively, in pairs or small groups. Following the design time, participants will re-convene for a loosely moderated SLOSH Madness session, in which participants will present their prototype SLOs for sharing, and constructive suggestions and critiques. Finally, there will be a brief discussion on the sociotechnical curriculum issues that have been identified, as well as a discussion to elicit interest and requirements for a SLO Repository (including issues such as metadata and copyright).

1.4 Follow-through

The sociotechnical learning objects developed in SLOSH will form part of a prototype Sociotechnical Learning Object Repository (SLOR), to be housed on the CSST wiki. Participants who opt in for subsequent follow-up will be informally surveyed towards the end of the school year to elicit experience reports with using the SLOs and SLOR, and plans for incorporating these approaches into future course offerings. A summative report will be posted on the CSST wiki based on aggregated participant feedback, and will include action items for future planning.

2. SUMMARY

There is a need for learning objects that support the instruction of sociotechnical theories and concepts. SLOSH will introduce, examine the nature of, and brainstorm new forms of sociotechnical learning objects. These SLOs will be suitable for implementation across a variety of curricula and courses, both in iSchools and beyond.

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