Association for Information Systems

AIS Electronic Library (AISeL)

UK Academy for Information Systems
Conference Proceedings 2016

UK Academy for Information Systems

Spring 4-12-2016

LEARNING UNDER THE DREAMING SPIRES – PERSONALISATION IN OXFORD TUTORIAL (46)

Mareike Schoop
University of Hohenheim, schoop@uni-hohenheim.de

Christine Booth
Oxford University, christine.booth@keble.ox.ac.uk

Follow this and additional works at: https://aisel.aisnet.org/ukais2016

Learning under the Dreaming Spires – Personalisation in Oxford Tutorials

Mareike Schoop[1], Christine M Booth[2]
[1]*Information Systems Group, University of Hohenheim, Germany*
schoop@uni-hohenheim.de
[2]*Keble College, University of Oxford, UK*
christine.booth@keble.ox.ac.uk

Abstract

Traditionally, teaching in universities has been done in lectures, example classes, and tutorials. Knowledge transfer in these forms of teaching is mainly teacher-focused and unidirectional with attempts to activate students to initiate a dialogue between students and lecturers. Oxford University has always offered tutorials as well as lectures but these tutorials are less tutor-focused because of the low number of tutees (typically 1-4 per tutorial). Thus, Oxford tutorials seem to be an instance of a personalised form of teaching and learning. In this paper, we will discuss our qualitative research into personalisation in such tutorials. In particular, we will analyse the results of observations and discuss the implications of information systems for providing personalised learning environments in and beyond these tutorials.

Keywords: Personalisation, Learning, Flipped Classroom, Personalised Learning Environments, Learning Styles

1   Introduction

Personalisation in university tuition becomes more important with increasing student numbers as the aim is for each individual to learn in the best possible way according to their individual learning styles and preferences and the tasks at hand (Melzer and Schoop, 2015a, b). Larger student numbers usually mean larger courses which in turn lead to a focus on the lecturer rather than on individual students.

Having developed a framework for task and tool personalisation (Melzer and Schoop, 2015b) and having observed students in their usage of learning tools for personalisation (Gross et al., 2016), we have now focused on a highly personalised learning environment, namely tutorials at Oxford University.

Undergraduate students at Oxford belong to a college. Whilst lectures on their subject are offered by the university for all students in that year, the colleges are responsible for tutorials that are usually offered in groups of 1-4 students per tutor and tutorial. Thus, this is not only an intensive learning environment but also a highly personalised form of teaching and learning.

The overall goal of our research is to provide an information system for personalised blended learning. To this end, the current paper presents observational notes on Oxford tutorials as specific types of personalised learning. The goal is twofold: (1) to observe this specific learning environment w.r.t. personalisation; (2) to deduce how an IS can support, enable, or extend such personalised learning in or following these tutorials. This is what our paper is all about.

We will describe the setting of our observations and the research methods used in section 2. Section 3 will present the results of our observations before we analyse the role of information systems for such personalised learning environment (section 4) which concludes the paper.

2   Setting and Methods

The setting is an Oxford college with undergraduate students who are offered tutorials. Permission was granted to observe tutorials and the students were informed about the purpose of research.

In total, four tutorials were observed with one topic covered in two tutorials each. Ten undergraduate students (8 female, 2 male) in their first year from two different colleges participated. The students were in groups of two or three per tutorial. Their chosen course of study is biological sciences and the tutor is a biologist.

To observe the interactions, the role of observer-as-participant (Burgess, 1984) was chosen as interaction with the students or with the tutor during the tutorials was not necessary. Furthermore, the observing researcher is neither a student (for a role as complete participant) nor an expert in the study course (for participant-as-observer).

The researcher took notes during the tutorials which was unobtrusive as the students also took notes and had their pen and paper ready. Observational notes consisted largely of descriptive information but also of reflective information. A colour scheme was used to distinguish between observations, reflections, and further ideas.

Each tutorial resulted in a number of diagrams or tables on the whiteboard which were photographed and thus documented. Furthermore, the essay questions of the previous week were also available as the document source. The actual essays that the students wrote were not shared.

The observations were followed by semi-structured interviews with the tutor to convey the observations notes and discuss the reflections that followed the observational part.

3   Observational Results

Each tutorial started with the essay from the previous week. The students were asked how they found it and what was particularly difficult. These opening questions resulted in very general answers ("OK.", "I found it hard."). The essays were returned and the students briefly looked at it. They were asked whether they had a question but they never had (or at least they never asked one). Then the tutorial started with the tutor setting the topic. This topic was often an aspect of the essays that was problematic for all.

3.1 Diagrams vs. Text

The most important problem in essays for all of the students was missing diagrams although the essay explicitly asked for diagrams (e.g. "Compare and contrast the structure and function of (…) illustrating your answer with annotated diagrams and experimental evidence.")   When asked by the tutor why they did not include diagrams, the students replied that they found it hard to draw them ("It is a nightmare."; "I am not good at drawing."), that they did not know what to put in them ("It is difficult to draw complex structures."), or they did not really see the reason for doing so ("Other exams don't do it."). The tutor replied that they would not get full marks unless they can draw diagrams and quoted the phrase "A diagram says 1000 words". The tutor then asked them to draw a diagram posing the essay question. In the end, they were set the task of "re-writing" their previous essay by making it a visual abstract containing only diagrams. After the initial shock, all students bravely agreed to do so.

3.2 Cooperative Work vs. Individual Work

All of the students found it difficult to start and individually drew parts of the diagram relating to a sub-question. They required input and guidance from the tutor. They then started to interact with each other, annotating each other's parts and even revising them. The tutor's role changed to that of a moderator. In one group, the students

discussed definitions with the tutor and even challenged her answers. They then replied to each other's questions and needed fewer guidelines. This was a prime example of cooperative work.

However, there were also instances of individual (and even isolated) work. Some students were unable (rather than unwilling) to cooperate and stayed on their parts of the diagrams. The more cooperation between the other students took place, the less those students interacted at all. In one instance, a student literally distanced herself from the fellow tutees by moving away from the whiteboards. In the end, the tutor only interacted with the active cooperative students who took over the whole process. Thus, even observing for a limited time made different learning styles apparent (Melzer and Schoop, 2014).

3.3 Knowledge Sharing vs. Knowledge Hoarding

One tutorial dealt with definitions and their applications. The students commented that they had difficulties understanding and distinguishing several terms. Here, the interaction required a starting input from the tutor but then turned into an informed discussion between the students. They explained what they understood and corrected each other. The tutor observed and ensured that the conclusions drawn were correct. It was then suggested by the tutor to exchange the diagrams and definitions with the other groups since they had focused on other definitions and relations or approached the subject in a different way, e.g. using tables rather than diagrams. Furthermore, the tutor also suggested to print out the photos and annotate each diagram individually to summarise the main findings or the points they found difficult to understand. The issue of knowledge sharing was closely linked to cooperative work. In the instance of a student not acting cooperatively, there was no knowledge sharing but rather knowledge hoarding as notes were taken but no output was given. However, this was a small aspect as the tutorials are there for students to interact with the tutor and also with each other. The aspect of sharing information between tutees within or between groups was emphasised by the tutor several times.

3.4 Lectures vs. Tutorials

Tutorials are a personalised learning environment for revising and deepening the knowledge gained in the lectures. What became clear is that there is hardly any interaction between lectures and tutorials (or between lecturers and tutors). From the

students' perspective, the following quotes show that there is a problem they notice: "It is difficult, they do the lecture and they never tell you what to do and draw. I looked back at the past papers and I would not know what to do.": "When we had the lecture, I thought it was OK but then I checked and found something else."

4   Implications for Information Systems

Even from the brief summary of observations shown above it is clear that the observed tutorials at the University of Oxford can be seen as instances of flipped classrooms (Bishop and Verleger, 2013; Oeste et al., 2014; Strayer, 2012). The concept of a flipped classroom (or inverted classroom) represents the idea to have learners consume knowledge in lectures, videos, books, journals etc. before applying the knowledge to given tasks that are then presented in the lecture/seminar/tutorial, thereby changing the role of teachers and learners and the perspective from consumption to (co-)creation.

In our case, the students attend the (traditional lectures) and prepare the tutorial subjects through their essays. They then discuss their ideas with each other and the tutor acting as a moderator and knowledge mediator and combine their knowledge in the tutorial. They take an active role and actually determine the content of a tutorial to a large extent. The tutor personalises the content for the tutees as became clear when tutorials with the same subject were conducted very different in style and level of interaction. Personalisation also takes place for the style of instruction. Whilst the style observed has been student-centred, the difference between students with a predominantly cooperative style and those with a predominantly individual (and thus non-cooperative) style became obvious. The non-cooperative students required more transfers of fact by the tutor whilst the cooperative students required the confirmation of their co-created knowledge at the end of their collaboration process.

Thus even though tutorials are a traditional part of teaching in Oxford, their style is tutor-dependent; as seen here, many tutors offer a rather innovative form of teaching.

However, all that glitters is not gold and improvements can be made to enhance the personalisation and ultimately the learning. In particular, we argue that such improvements can be enabled or supported by means of dedicated information systems.

The clear gap between traditional lectures which are teacher-driven and tutorials which are more student-driven poses problems for the students to switch and to integrate the knowledge from these very different sources. The flipped classroom concept requires the knowledge transfer from the expert to the learners before the learners take the active role. However, this is ideally done by the same players. In particular, the teacher plays both the roles of expert in traditional knowledge transfer and as moderator for the learners taking the active role. In the case of Oxford tutorials, there are different experts involved. The observed tutorials were taught by a tutor not teaching the lecture. This is the case in the majority of tutorial teaching. The simple problem with far-reaching consequences is obvious, namely the tutorials requiring the knowledge provided in the lectures and the lectures requiring the feedback from the application of knowledge as performed in the tutorials. If this knowledge is not transferred, the students will face the first gap of teaching methods.

Thus, an information system would help to share knowledge not only among students but also between the different teachers involved in a course.

What became clear is that the knowledge application, knowledge sharing, and knowledge acquisition must continue beyond the tutorials. The tutorials show the importance of collaboration between students and even force them to interact in that way. However, there is no dedicated means of knowledge sharing and interaction beyond the tutorials. The students might continue interacting (e.g. revising in groups) whilst others might return to solitary learning. Thus, this is the second methodological gap, namely that of learning methods. In an interview, the tutor was clear about this fact and about it being a problem, making smooth learning transitions difficult.

An information system that provides a personalised learning environment would definitely help.

Firstly, it could provide the means for writing wikis which are very important for shared terminology and the correct understanding of definitions. Secondly, it could introduce other sources such as additional articles, lecture notes, videos, or discussions. These sources could be provided by the tutor but also added by the students for sharing sources they found most helpful. The tutor and the lecturer would need to have access to such system to be better prepared for the problematic issues that will be clarified in the tutorials and expanded in the lectures. Thirdly, the system could support revisions by means of self-tests. Finally, the system could act as a repository for previous exam papers that are available and that could be annotated by

individual students to start discussions. All of these issues should be addressed with the possibility of personalising the content, the level of detail, the learning method, and the individual tasks.

We have developed a framework for tool and task personalisation that will be implemented as a system for blended personalised learning as an innovative instance of an information system (Melzer and Schoop, 2015b). We aim to apply it to a German lecture course and to Oxford tutorials to compare and contrast its application potential. This will enable a cross-country, cross-discipline, and cross-teaching method evaluation.

References

Bishop, J. and Verleger, M. A. (2013) *The Flipped Classroom: A Survey of the Research*, In Proceedings of the 120th ASEE Annual Conference & Exposition.

Burgess, A. (1984) In the Field: An Introduction to Field Research, Routledge, London.

Gross, P., Schmid, A., Gettinger, J., Melzer, P. and Schoop, M. (2015) *How Do University Students Select and Use their Learning Tools? A Mixed- Method Study on Personalised Learning*, In UK Academy for Information Systems Conference Proceedings 2016.

Melzer, P. and Schoop, M. (2014) *Individual End User Training for Information Systems using Learning Styles*, In UK Academy for Information Systems Conference Proceedings 2014.

Melzer, P. and Schoop, M. (2015a) *Personality-based versus Task-based Factors as Indicators for Personalised Learning Environments*, In UK Academy for Information Systems Conference Proceedings 2015.

Melzer, P. and Schoop, M. (2015b) *A Conceptual Framework for Tool and Task Personalisation in IS Education*, In Proceedings of Thirty Sixth International Conference on Information Systems (ICIS), AIS, Fort Worth, USA.

Oeste, S., Lehmann, K., Janson, A. and Leimeister, J.M. (2014) *Flipping the IS Classroom – Theory-Driven Design for Large-Scale Lectures*, In Proceedings of Thirty Fifth International Conference on Information Systems (ICIS), AIS, Auckland, New Zealand.

Strayer, J. F. (2012) *How learning in an inverted classroom influences cooperation, innovation and task orientation*, Learning Environments Research, 15(2) 171–193.