LEEDS INSTITUTE *for*
TEACHING EXCELLENCE

Information and instructional design principles to enhance accessibility and inclusivity of course material on Blackboard VLE

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Project Snapshot

Month/Year

UNIVERSITY OF LEEDS

Project Overview

Previous research has shown problems with the way information is presented and structured on Blackboard VLE in terms of accessibility, orientation, consistency and legibility. Such inefficiency leads to frustrated students and a failure to ensure teaching and learning quality. This is worrying, considering that Blackboard is the main tool of communication, management, and assessment used by staff on a daily basis. Moreover, it is a tool with great potential to offer high quality teaching to our generation of students who are always online and are very tech savvy.

The aim of this project was to use an information and instructional design approach to enhance accessibility and inclusivity of course material on Blackboard VLE at the University of Leeds.

Project Objectives

- To identify how staff organise and display course information, and student usage, views, and expectations of using Blackboard VLE.
- To develop new design solutions using information and instructional design principles, as well as user-centred research methods.
- To involve students as co-creators of education: as designers and researchers, as well as participants in any testing conducted.
- To disseminate the findings and good practice through a Blackboard VLE Design Guidelines booklet, motion graphics video and workshops delivered to staff at UoL.

Methodology

An audit of 55 modules taught in Semester 1 (UG and PGT) in the School of Design was conducted to identify: a) how staff organise and display course information; b) good and bad practice.

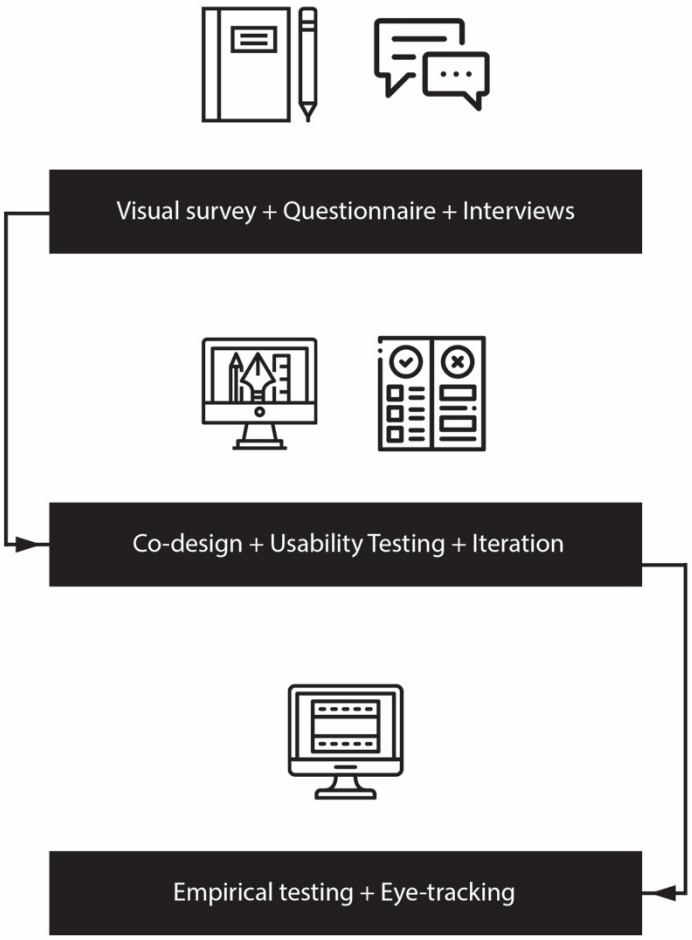
An online questionnaire was conducted with 31 lecturers from the School of Design to understand: a) staff usage of Blackboard VLE; b) interventions that might help them to use it more efficiently.

Interviews were conducted with 31 students (UG and PGT) from the School of Design to understand student: a) usage; b) views; c) and expectations of using Blackboard VLE.

Co-design sessions were conducted with students (all UG years and PGT) to develop initial design concepts capable of maximising Blackboard VLE usage and support to T&L.

Usability tests were conducted to develop, test and iterate design solutions.

Performance testing and eye-tracking measurement were conducted to ascertain which design(s) are more effective at allowing students to find information faster and more accurately.



Key findings

4.1. Audit of existing modules

The majority of modules:

- Provided no or very little information on staff teaching in the module.
- Used fonts, font size and colours inconsistently in the announcements.
- Had important information missing or located under the wrong tab.
- Had a high number of learning materials randomly arranged rather than arranged by folders, themes, or chronologically.
- Had no description of what folders and files contain.
- Had some sections that were left empty.

4.2. Questionnaire w/ staff

- 81% believe that Blackboard is an essential tool to use regularly to help deliver their teaching effectively.
- 89% said, however, that they were given no training when they arrived at the UoL.
- 71% believe that it is very important to receive training, and 26% believe it is somewhat important. So, only 3% believe it is not important.
- 84% use blackboard regularly.
- 55% believe that it would be useful, 32% that it might be useful, to have a set of design guidelines (dos and don'ts) to help staff use Blackboard more efficiently and keep consistency across modules.
- 65% believe that it would be useful, 29% that it might be useful, to have short video tutorials available in the help section of Blackboard.

4.3. Interviews w/ students

- 87% think that Blackboard is an essential tool to use regularly to help them learn effectively.
- 61% believe that it is very important for students and staff to receive training, and 36% believe it is somewhat important. So, only 3% believe it is not important.
- 97% use blackboard regularly.
- 48% believe that it would be useful, 36% that it might be useful, to have short video tutorials available in the help section of Blackboard.
- The vast majority of students use Blackboard for assessment and to access lecture slides.
- Although this is a generation familiar with reading online, 45% of students said that they always download the materials, and another 45 % said that they do it most times.
- 90% use a computer to access Blackboard, while 10% use a tablet.
- Additional functions that students would like to have on Blackboard include: Timetable with deadlines, academic year calendar, assignment deadlines.
- 61% do not think it is very easy to find information on Blackboard.
- 71% do not think information is very well organised on Blackboard.

4.4. Co-design sessions with students as co-creators

- Students rearranged Blackboard by changing the order of the menu, renaming the labels on the sidebar and selecting the appropriate icons for different file types.
- Students removed some features from the learn menu, as students reported that they never use them (e.g. module catalogue).
- However, students did not fill any blank cards with new features as they wanted the menu to be minimal and less distracting.
- Three clicks was the highest number selected to navigate in order to get the materials needed. So, again, simplicity and minimal effort was the choice.

4.5. Experimental testing

Performance was measured by **accuracy** (i.e. number of correct answers). Results show that the information found by participants was:

- Significantly more accurate with the Redesigned VLE ($M = 7.83$) than with the Typical VLE design ($M = 5.57$) ($p < 0.001$).
- Significantly more accurate with the Ideal VLE design ($M = 9.00$) than with the Typical VLE design ($M = 5.57$) ($p < 0.001$).
- Significantly more accurate with the Ideal VLE design ($M = 9.00$) than with the Redesigned VLE ($M = 7.83$) ($p < 0.001$).

Performance was also measured by **time** (i.e. time taken to find the information). Results also show that participants spent:

- Significantly less time to find information with the Redesigned VLE (M = 857.13) than with the Typical VLE design (M = 1240.17) ($p < 0.001$).
- Significantly less time to find information with the Ideal VLE design (M = 507.43) than with the Typical VLE design (M = 1240.17) ($p < 0.001$).
- Significantly less time to find information with the Ideal VLE design (M = 507.43) than with the Redesigned VLE (M = 857.13) ($p < 0.001$).

The vast majority of participants also agreed that:

- The information organised on the module was clear (Redesigned = 67%; Ideal = 77%).
- There is enough distinction and clarity between the names of the different functions (Redesigned = 77%; Ideal = 73%).
- Written descriptions of the content in each file is useful to help you find what you need (Redesigned = 77%; Ideal = 73%).
- The colour scheme used on this module is clear (Redesigned = 63%; Ideal = 87%).
- The icons used on this module are clear at communicating what they represent (Redesigned = 60%; Ideal = 83%).
- Overall, the design of this module is effective (Redesigned = 70%; Ideal = 80%).

Outcomes

A new Blackboard module design was created to serve as an example of good practice to be used by staff at the UoL.

A guidelines booklet (pdf version) was created, which contains clear guidelines on how to best organise information on Blackboard VLE. The guidelines combine information design principles from the literature, findings from the interviews with students, co-design sessions with students, and experimental testing measuring performance (speed of finding information and accuracy of the information found) and eye movements. The booklet also gives a rationale for why these guidelines should be used, as well as visual examples for Dos and Don'ts.

A motion graphics video was created to disseminate the study and provide the guidelines to staff in a more engaging and accessible way (with step-by-step instructions). The motion graphics was created in such a way that students as co-creators of education are communicating to staff what their needs are and best practice to follow when organising information on the VLE.

An ideal design was also created. This is to show how a module on Blackboard VLE would be designed if we did not have the constraints imposed by Blackboard. This design was also tested and is more user-friendly, uses more visualisation, and organised information in a more intuitive way.

Challenges

The main challenges were as follows:

Staff engagement with the study: to address the issue of staff engagement during a busy semester one we opted to run an in-depth online questionnaire as opposed to individual interviews. This enabled staff to take part when it was more convenient for them. It worked well and we received responses from 31 members of staff.

The recruitment of students for the experimental testing who had not used Blackboard VLE before: to deal with this we recruited students attending pre-sessionals in July and August, as soon as they arrived to the

University. We also recruited PhD students who do not have access to Minerva when studying at the UoL (and who confirmed they had never used Blackboard).

Next steps

The next steps will be to deliver workshops to staff in the School of Design in June/July 2020, so that they prepare their modules for the coming year following the guidelines. I will be available to help them set up the modules and give feedback on the design and structure. The same workshops will be delivered via LITE to other staff across the entire UoL and who might be interested in receiving help.

I am also going to meet the Minerva team to see how we can make these guidelines available on Minerva itself and merge with existing work/research already conducted by the Minerva team.

During the workshops and post-workshops, I also want to collect quantitative and qualitative data on the impact these guidelines might have on staff performance, adherence, etc.

Finally, I am going to submit a paper for publication in a blind international peer-reviewed journal that will be in place for the next REF 2025.

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