Enhancing student experience through online collaboration: materials research project

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INTRODUCTION

This project was initiated through a Learning and Teaching Fellowship at Birmingham City University. The work focused on an assessed team element of a level 4 module called 'Materials Technology'. Student teams researched an assigned material to demonstrate its properties, applications and environmental impacts, through the analysis of manufacturing processes of a chosen product. The research was traditionally presented using PowerPoint and the project progress tracked through group tutorials. However, the aim for this project was to explore the potential of the Virtual Learning Environment (VLE), Mahara, to investigate if online collaboration can:

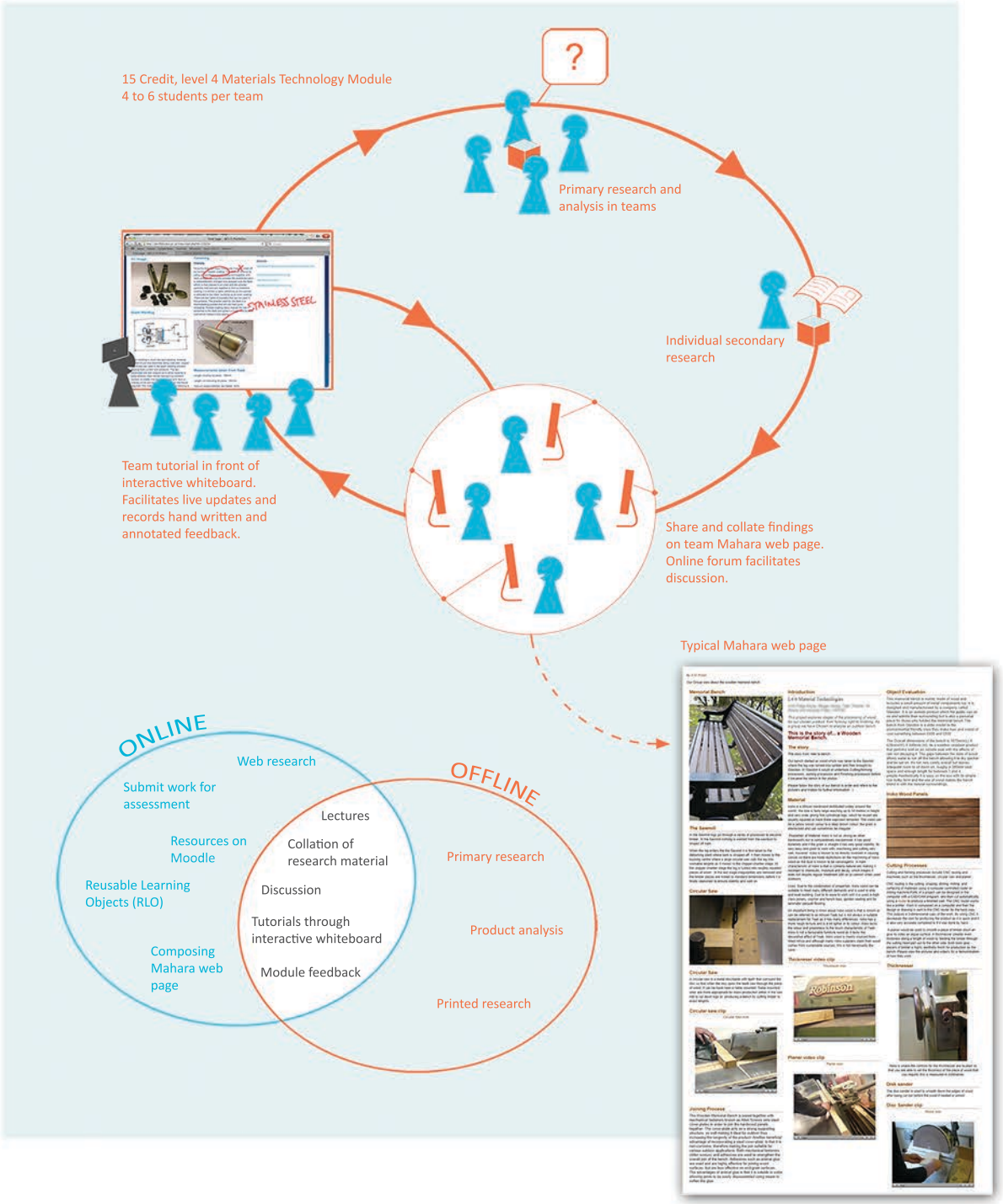
- improve student engagement
- improve understanding of material properties and applications
- and improve the student experience and satisfaction with the module.

BACKGROUND

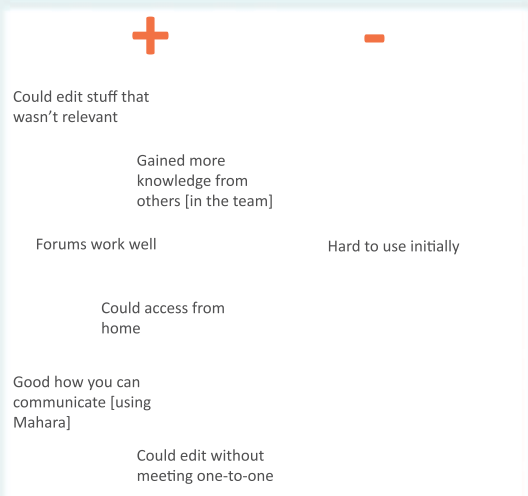
The project responds to the needs of *Digital Natives*, the majority of undergraduates who have grown up with digital technologies, and think and process information differently from their predecessors (Prensky 2001). Shao et al. (2007) examined how Web 2.0 can be used to develop online design studio teaching, and Schadewitz and Zamenopoulos (2009) studied the effectiveness of social networking in design distance learning. This study explores the overlap between online and offline learning and the benefits of reinforcing face-to-face teaching with online collaboration.

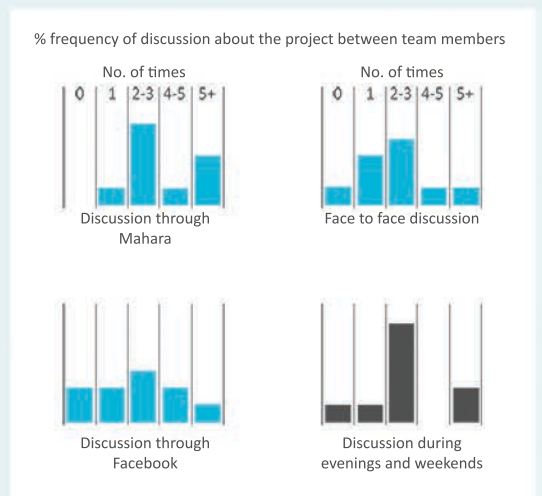
METHOD

Student teams researched a manufactured product mostly made of either wood, metal, plastic, glass or ceramics. The appropriateness of the material for the application and manufacturing processes were explored and presented on a Mahara web page. Team tutorials took place in front of an interactive whiteboard where real-time changes and hand written annotations could be captured.
A focus group and questionnaire results were compared to the traditional, PowerPoint presentation model.



FINDINGS





CONCLUSION

The online collaboration provided flexibility (time and location) in the way students contributed to the team project. The process facilitated a collaborated outcome rather than a collection of individual contributions. A higher proportion of students felt that they had developed a good understanding of material properties and applications, and the overall module experience had considerably improved (compared to the traditional team project). The approach demonstrated a higher level of student engagement through the flexibility of online collaboration and greater overall student satisfaction. The teaching model fostered wider participation and encouraged shared peer learning of material properties and applications. The research led to further investigation into the potential for online design studios to encourage greater peer interaction through collaboration, and sharing and enhancing ideas, skills and processes.

REFERENCES

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