



Enhancing belonging and vocabulary learning through an interactive engineering map

Samantha Wilson

University of Leeds, UK

Alister Drury

University of Leeds, UK

Costas Loizou

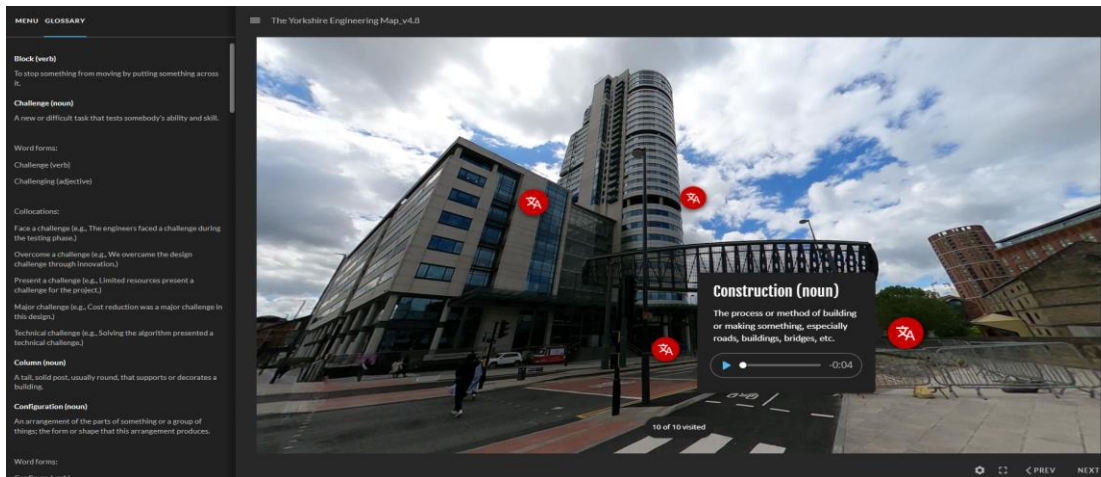
University of Leeds, UK

Presentation abstract

Our project focuses on developing an interactive engineering map to support students at the Southwest Jiaotong University–Leeds Joint School (SWJTU-Leeds) in China. While these students study on SWJTU's Chengdu campus and learn through English-Medium Instruction (EMI), they graduate with degrees from both SWJTU and the University of Leeds. The resource aims to foster a sense of belonging to Leeds while enhancing vocabulary acquisition.

With the assistance of our Digital Education Enhancement (DEE) Team, we decided to use an emerging technology to create our interactive map. Our first prototype used ThingLink, which allowed us to use 360° images of Leeds landmarks, introducing students to the city alongside vocabulary from the Academic Word List (Coxhead, 2000) and Engineering Word Lists (Mudraya, 2006; Ward, 2009; Watson Todd, 2016). However, when we tried to pilot our resource with students in China, ThingLink was inaccessible. We then turned to Articulate Storyline, which had similar functionality but was easily accessed from China.

The first completed case study focused on Bridgewater Place in Leeds (see Figure 1), exploring an engineering issue tied to the building. Students interacted with the resource through 360° visuals, videos and interactive exercises that reinforced vocabulary learning.

Figure 1. 360 view of Bridgewater Place.

The resource will be used in the Year 1 English module, with some case studies integrated into the curriculum and others for self-study. Collaboration with engineers from Electronic and Electrical Engineering is underway to create a new case study on solar panels. Discussions with engineering lecturers suggest potential for use not just at SWJTU-Leeds Joint School but also at the University of Leeds, enhancing its impact for both Chengdu and Leeds-based students.

Informal feedback given by second-year students in Chengdu was positive, with participants agreeing the resource improved their vocabulary and connection to Leeds. This feedback indicated that use of the map helped students feel a greater connection to the University of Leeds as well as a 'part of' their faculty. We collected formal feedback before the conference to further explore the effectiveness of the resource.

Keywords: transnational education; vocabulary acquisition; technology-enhanced learning; engineering education; English for Academic Purposes.

Community response

The presentation fostered an engaging dialogue that highlighted the importance of creating a supportive and inclusive academic environment, especially for international students. The audience remarked that the paper was exceptionally well received by participants and sparked a lively and thought-provoking discussion on the significance of emotional resilience in student success, particularly for international students. For example, one

audience member remarked she was particularly drawn to the support provided for two distinct groups, including students adjusting to university life and those adapting to the UK culture. The interconnection between language, context and wellbeing emerged as a recurring theme. Despite challenges related to accessibility and technical issues, the innovative use of technology such as virtual reality (VR) and interactive maps, was highlighted as playing a pivotal role in addressing the challenges of students' lived experiences. The presentation also showcased impressive work and demonstrated a highly efficient use of the allocated time, which left a lasting impact on participants.

The presenters were both engaging and insightful while offering a qualitative reflection on the multifaceted challenges faced by students, particularly those transitioning to university life or adapting to a new cultural context. The presenters also demonstrated a deep understanding of the emotional and social complexities of this transition. The conversation was marked by a collaborative exchange of ideas, which emphasised the importance of creating a supportive, inclusive environment that normalised struggles and validated diverse experiences. This reflective dialogue not only underscored the need for practical solutions but also demonstrated a collective commitment to fostering resilience and wellbeing in academic settings.

Next steps and additional questions

Students expressed that the resource significantly enhanced their learning experience by providing relevant vocabulary within a meaningful context. Many noted a strengthened connection to the city of Leeds, which has fostered a sense of belonging. Additionally, the use of 360 images was highlighted as both useful and engaging, as they contributed to a more immersive understanding of their surroundings (see Image 2).

The next steps involve developing detailed case studies for each engineering programme, starting with Civil Engineering. The presenters subsequently plan to focus on a case study on solar energy at the University of Leeds. To gather rich and in-depth details for these case studies, they will collaborate with electrical engineering lecturers in Leeds and leverage their expertise to create comprehensive and relevant content. This approach will enhance the educational resources available to students while facilitating interdisciplinary connections within the engineering community.

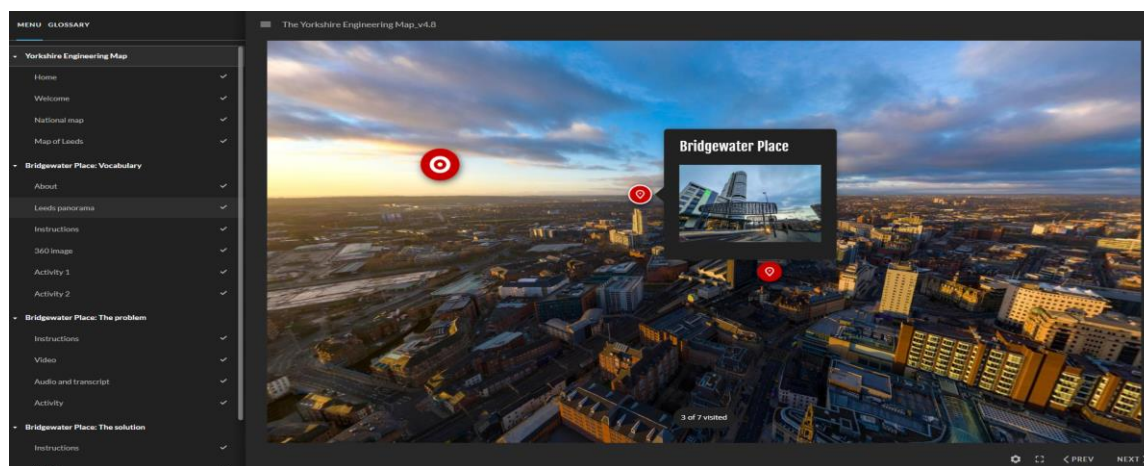
Authors' reflection

The development of our interactive engineering map was shaped by both pedagogical aims and practical constraints. Our goal was to support Year 1 students at the SWJTU–Leeds Joint School in developing a sense of belonging to Leeds and strengthening their academic vocabulary within an engineering context. Early prototypes were created using ThingLink, but accessibility issues in China led us to pivot to Articulate Storyline, which offered similar functionality and greater reliability for our students.

The process involved close collaboration between EAP lecturers, subject specialists, and the Digital Education Enhancement team. We began by scripting case studies around Leeds landmarks, then used corpus tools like AntWordProfiler to refine the language, ensuring that the vocabulary aligned with the Academic Word List and engineering-specific word lists. We also embedded principles of explicit vocabulary instruction, incorporating interactive tasks, glossaries and multimedia elements to support both breadth and depth of vocabulary knowledge.

Alongside vocabulary development, the resource was designed to foster a sense of place attachment – an emotional bond with Leeds that could contribute to students' broader sense of belonging. For students studying in Chengdu who may never visit Leeds in person, the map offers a virtual connection to the city and the university (see Figure 2). Informal feedback suggests that this digital immersion helps students feel more integrated into the University of Leeds community despite the geographical distance.

Figure 2: 360 view of Leeds city centre.



It is also encouraging to see the themes of emotional resilience and adaptation to a new cultural context highlighted in the community response to our presentation. While there is literature which looks at the sense of belonging of home and international students, there is a gap when it comes to those in the TNE context; these students are situated in their home country, like other home students, but like international students, they study in an unfamiliar cultural context. For our TNE students, this sense of belonging is therefore divided between the two contributing universities: do they belong to Southwest Jiaotong University or University of Leeds?

Looking ahead, we are eager to incorporate the resource into the Year 1 English curriculum in the upcoming academic year. Doing so will allow us to observe how both students and teachers engage with the map in a structured learning environment, and to gather more detailed feedback on its usefulness and areas for improvement. This next phase will be crucial in helping us refine the resource and better understand its potential to support belonging and vocabulary development in transnational education.

Acknowledgements

Thank you to all the contributors who shared their reflections and enriched our insight into this conference presentation and its impact on the audience. Special thanks go to Raghda Zahran, the conference and session chair. The community response was edited by Vienne Lin from the University of Bath, who captured the key themes of the community discussion.

The authors did not use generative AI technologies in the creation of this manuscript.

References

Coxhead, A. (2000) 'A new academic wordlist', *TESOL Quarterly*, 34(2), pp. 213–238.

Available at: <https://doi.org/10.2307/3587951>

Mudraya, O. (2006) 'Engineering English: a lexical frequency instructional model', *English for Specific Purposes*, 25(2), pp.235–256. Available at:

<https://doi.org/10.1016/j.esp.2005.05.002>



Ward, J. (2009) 'A basic engineering English word list for less proficient foundation engineering undergraduates', *English for Specific Purposes*, 28(3), pp. 170–182. Available at: <https://doi.org/10.1016/j.esp.2009.04.001>

Watson Todd, R. (2016) 'An opaque engineering word list: Which words should a teacher focus on?', *English for Specific Purposes*, 45, pp. 31–39. Available at: <https://doi.org/10.1016/j.esp.2016.08.003>

Author details

Samantha Wilson is an EAP lecturer at University of Leeds and a Fellow of the Higher Education Academy. She leads a pre-sessional module for postgraduate business students, and co-leads XJFY0100 English for Engineering, the Year 1 EAP module for SWJTU – Leeds Joint School with Alister Drury. Her research currently centres on sense of belonging in transnational education.

Alister Drury is an EAP lecturer at University of Leeds. He co-leads XJFY0100 English for Engineering as well as a pre-sessional module for postgraduate STEM students. His research interests are currently focused on academic and disciplinary vocabulary.

Costas Loizou is a Lecturer in Mathematics at the University of Leeds and a Fellow of the Higher Education Academy teaching for the SWJTU-Leeds Joint School. He leads the Mathematics module and leads and developed the Scientific Problem Solving module for Year 1 of the Joint School. His pedagogic research is on Language-Focused Inclusive STEM Education.

Licence

©2025 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See <http://creativecommons.org/licenses/by/4.0/>. Journal of

Learning Development in Higher Education (JLDHE) is a peer-reviewed open access journal published by the Association for Learning Development in Higher Education (ALDinHE).