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Preparing STEM students and teachers with extended learning opportunities through flipped/hybrid classrooms: The case of study of English-medium instruction (EMI) STEM students in Hong Kong and the United Kingdom

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Abstract:

The outbreak of COVID-19 has changed our lives in different ways. As many English medium instruction (EMI) universities around the world have been forced to shut down, teaching and learning content subjects through English is now taking place in a virtual environment, which is especially the case for Science, Technology, Engineering, and Mathematics (STEM). The traditional way of teaching and learning in classroom where STEM teachers can physically interact and discuss with students can now be replicated easily in the online setting. Many STEM professors and lecturers welcome the idea of delivering academic content online in EMI courses, because a) their class sizes can increase and b) the mode of communication can be changed from physical to virtual teaching at anytime, anywhere using a wide range of platforms to promote interactive teaching, for example using chat box, polling, and breakout rooms. A wide range of platforms is available for STEM teachers to deliver STEM content knowledge or run STEM experiments, such as Zoom, Panopto and Microsoft Teams. Also, teaching STEM courses has gradually become a live broadcast with a change in the format of assessments (i.e., online exam/quiz or even an open-book format). Many STEM students welcome the adjustment to this new format of online teaching and learning as they have been prepared with relevant physical infrastructures to proceed with their STEM studies online (e.g., Internet availability, speed, data, webcam).

However, a critical review is perhaps needed for developing an effective pedagogy in this new format of online-based and technology-assisted teaching. If STEM teachers and students can be equipped with the coping strategies in addressing their needs in adopting such a new format of teaching and learning environment, where they can have meaningful interactions in their online classes through automatic online tools (e.g., pre-recorded lesson clips and monologic livestream teaching), this change will have a positive impact on language learning and development. Thus, this project aims to address this issue by developing innovative ways of pedagogies in supporting teaching and learning of STEM content beyond the traditional classroom settings. With the data from Hong Kong (students who learn English as foreign language) and the UK (both native speakers and international students who use English as a second language in the UK), the findings of this proposed project will help CityU STEM teachers prepare their teaching in a flipped/hybrid classroom context that allows more quality of interactions and meaningful learning, and promote STEM students to learn STEM content beyond the classroom time.

Academic Publication:

Pun, J. K. H. (2020). An integrated review of the role of communication in veterinary clinical practice. BMC Veterinary Research, 16(1), 394. https://doi.org/10.1186/s12917-020-02558-2