

Flipped Learning: Virtual Reality for Gateway Education Course

INTRODUCTION

A flipped classroom approach was adopted in a Gateway Education course of Science & Technology from the support of a cross-university UGC project fund. It is the first VR course to reveal the internal structure of the 46-meter Electric Wind Turbine in Hong Kong. Our IT officer had to undergo a full-day training to pass the Construction Industry Safety Training Test before shooting any aerial footage with the drone and capturing 360° photos. Only green safety card holders were permitted to enter the structure as it was considered a dangerous construction site.

IN-CLASS LEARNING

Students of the course were required to take a virtual reality (VR) field trip to Lamma Winds, the first commercial-scale wind turbine in Tai Ling built by HK Electric, to better understand how electricity can be produced from wind energy. The flipped classroom activity is to facilitate understanding of the complex mechanism of the wind turbine drive train for electricity generation. Such enjoyable and immersive online learning experience was made accessible via students' smartphones.

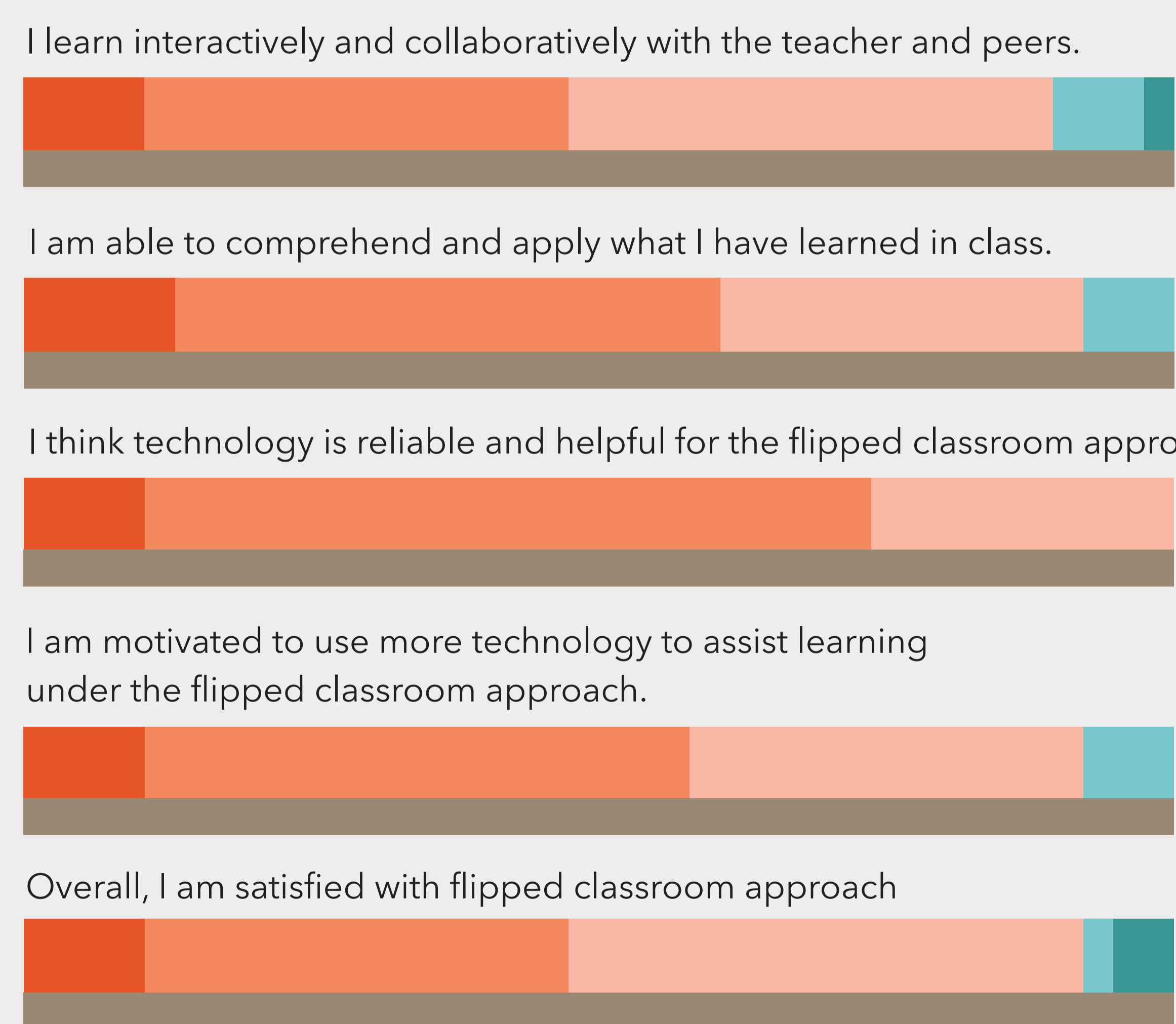
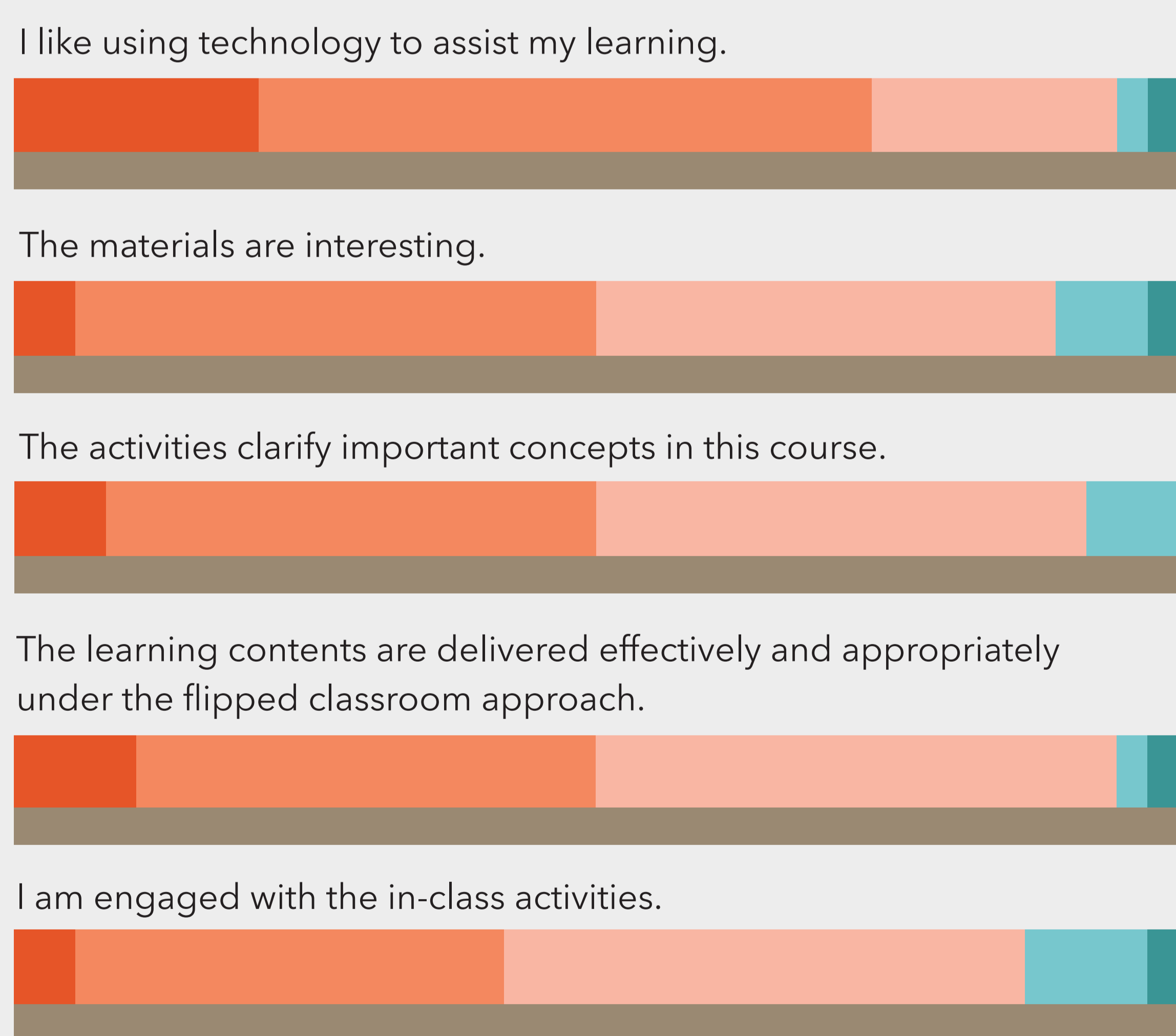


FACE-TO-FACE LEARNING



A face-to-face class including a traditional lecture and a Q & A session followed. In order to achieve the intended learning outcomes, an in-class group presentation exercise was held in the following week.

FEEDBACK FROM STUDENTS



Legend: Strongly Agree (Dark Orange), Agree (Orange), Neutral (Light Orange), Disagree (Light Blue), Strongly Disagree (Dark Blue)

Students were asked to respond to a pre-class and post-class survey about their flipped learning experience. Of 38 responses to the post-class flipped survey, 73% of them supported using technology to assist their learning and agreed that technology is reliable and helpful for the flipped classroom learning. Two-thirds felt an enhancement in their ability to comprehend and apply what they learned in class, and more than a half of the respondents were motivated to use more technology to assist their learning under the flipped classroom approach.