DESIGNING A MOBILE MAKERSPACE: A STRATEGY FOR INCREASING DIVERSITY THROUGH K-12 ENGINEERING OUTREACH
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Purpose of this poster:
To illustrate how an engineering design process is being used to guide Connections Engineering Outreach’s mobile makerspace project. The poster focuses on how the design process was used after the initial decision was made to design and build a mobile makerspace that could travel to schools to deliver STEM outreach workshops.

The Ministry of Education in Ontario is looking for opportunities to emphasize and develop 21st century competencies. The emerging literature on makerspaces suggests that they provide opportunities for students to foster these competencies.

Makerspaces are physical spaces that provide access to fabrication tools, technologies, and resources while contending making - an active process of building, designing, and innovating to produce shareable artifacts.

In April 2018, an online program evaluation survey was designed and distributed to schools to provide opportunities for educators to comment on improvements strategies for the program.

Funding | Sustainability
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Staffing | Timeline
Alignment with objectives | Size of vehicle

Two approaches emerged from a post-it-note exercise used to brainstorm ideas towards the maker mobile delivery model.

Option one
Drive a large vehicle (i.e. cube van) and unload the makerspace technology into the classroom. This model is similar to that used by the STEM outreach organization at the Faculty of Engineering and Applied Science at the University of Ottawa.

Option two
A larger vehicle (i.e. bus or a truck and trailer combination) that can contain the makerspace technology and the students physically complete the workshop inside this space.

CEO works with educators to plan makerspace workshops that are suitable for their students and have links to the Ontario STEM curriculum, literacy and numeracy, and 21st century competencies. One example is to design a wearable technology using a microcontroller to count the number of steps taken.

Connections Engineering Outreach (CEO) is a K-12 engineering outreach organization with the mission to educate, inspire, and raise the profile of Science, Technology, Engineering, and Mathematics (STEM) careers among pre-university students, educators, parents, and the public.