Creating Learning Objects – Supporting student learning with online resources at Fanshawe College

Opportunity

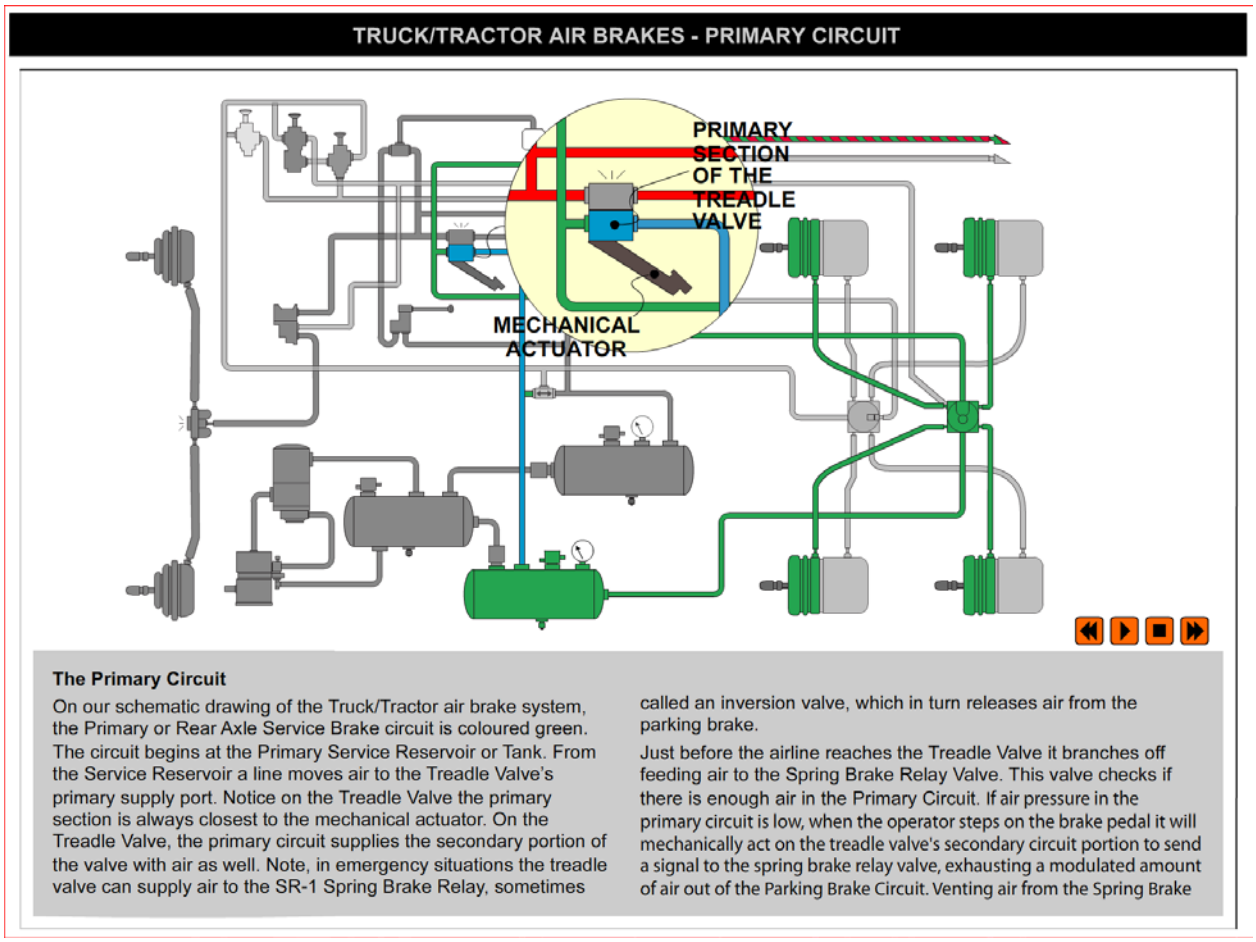
In 2007, a counsellor in the Accessibility Office at Fanshawe College in London received a grant to study and support the learning styles of students with learning disabilities enrolled in apprenticeship programs. As many of the students learned more effectively with visual resources, it was decided to create video materials that would be accessible to all learners to enhance and review what they had heard and seen in the classrooms in lectures and live demonstrations.

The videos were produced collaboratively, with the Learning Object Studio working with the professors in Motive Power (now the School of Transportation Technology) and the Accessibility Office. Although the grant has expired, the creation of video learning objects has continued. The Learning Object Studio includes staff from the Centre for Academic Excellence and the Information Technology Department.

Innovation

A professor in the School of Transportation Technology, Bruce Wells, wanted to create a series of videos on air brakes for trucks for students in the Heavy Trucks, Bus and Coach Apprenticeship Program and worked with staff from the Learning Object Studio to produce them. However, they quickly realized that video was not the appropriate medium as air is invisible and so its movement and impact could not be seen.

Based on the scripts developed for the video series and consultation with Professor Wells and his colleagues, Bruce Moore and Steve Torrens in the Learning Object Studio developed a series of Flash animations that illustrate the circuits and the functioning of the brake systems for heavy trucks. Using colour-coded images, labels, and close-ups that are linked to the narration, each animation demonstrates and explains in detail a unique aspect of the brake functions.



To supplement the learning, the original videos have been linked to the animation of the braking systems. By clicking on a component of the animated image, students can view the video of the actual part, its structure, and functions. A search feature has also been added so that students can locate the parts of the video narration where specific terms are used. The videos have been broken into segments so that students can watch and review selected topics.

The WGBH Flash CC Player ASP3 has been used to create the animations as it has features that are adapted for the learning disabled, including the capacity to include closed captions. The videos and the animations are accessible through Fanshawe Online, the college's learning management system.

Fanshawe College has also created a YouTube channel, Fanshawe Motive Power (http://www.youtube.com/user/FanshaweMotivePower/videos?view=1), which offers all the videos and animations related to transportation developed since 2007. The 58 videos cover such topics as A/C systems, valve grinding, clutch adjustments, and air brake

systems. The majority of the videos feature demonstrations and narration. Each one has had thousands of views.

The Learning Object Studio has created learning objects for many programs at Fanshawe College. For example, interactive online lessons for nursing students on pain and therapeutic treatments are available in the LMS. A series on concrete for Construction Technology students includes animation and dissolving slides to illustrate processes such as curing, pouring, and set-up. For Building Technology students, seven modules on fall safety and protection blended stills, text, narration, collages, and animation to illustrate practices and regulations. For mathematics students, a game featuring prime factors is available. For use in health courses, Bone Puzzle – The Human Skull asks students to put the skull bones in the appropriate places from front, side, and back views and to label each bone.

A project currently under development involves creating a series of videos on Academic Integrity which will be used as a college-wide resource for students as part of their orientation to the college.

Outcomes and Benefits

The videos and animations for the students in the School of Transportation Technology have largely been developed as supplements to in-class learning. They provide the students with the opportunity to review difficult concepts and to learn at their own pace. For international students and others with language or learning challenges, the learning objects can support their learning by offering multiple approaches to learning through narration and closed captions linked to visual presentations of the concepts and the skills.

The use of YouTube for the videos from the School of Transportation Technology makes them easily available to Fanshawe College students, and others, on mobile and other devices, outside of the College LMS. YouTube is device neutral and offers superior streaming and compressions capacity.

Challenges and Enhancements

Content experts are more accustomed to classroom situations in which the students are able to ask questions and request clarification. Creating online learning objects requires determining in advance what the questions might be and providing sufficient detail for clear understanding without overwhelming the students.

The staff in the Learning Object Studio adapt their techniques to the students, their learning needs, and the content to be learned. Cost is also a factor in determining whether to use, animation, video, stills, and other online techniques. Potential use is assessed against the cost of creating the learning object.

Potential

Fanshawe College is currently developing a strategic plan on e-learning as part of a larger initiative, the Student Enrollment Management Plan. Within this, e-learning has been recognized as an area of particular interest.

The resources developed for the School of Transportation Technology are freely available as open educational resources on YouTube. In addition, the staff members in the Learning Object Studio are open to sharing their experiences and perspectives with their colleagues.

For Further Information

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