

# Evidence-based Blended Learning Design

ONLINE LEARNING 2019: Global Online Learning Summit

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Evidence based design



Theory

Experience

Research



# Four blended learning studies at YorkU

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1

Owston, R. D., York, D., & Murtha, S. (2013). Student perceptions and achievement in a university blended learning strategic initiative. *Internet and Higher Education*, 18, 38–46.

2

Owston, R., & York, D. (2018). The nagging question when designing blended courses: How much time should be devoted to online activities? *Internet & Higher Education*, 36, 22–32.

3

Owston, R., York, D., & Malhotra, T. (2019). Blended learning in large enrolment courses: Student perceptions across four different instructional models. *Australasian Journal of Educational Technology*, 35(5).

4

Blended learning in STEM and non-STEM courses: How do student performance and perceptions compare? (in progress)

# Study 1: Student perceptions and achievement – high vs low achievers

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More satisfied

Would take a BL course again

Preferred BL over traditional

More convenient

More engaging

Learned key concepts better

# Implications of Study 1

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Low achievers may not be able to cope with the blended environment as well their high achieving peers



Offer students a choice of whether to enroll in blended or fully face-to-face course sections, especially in subject areas that students find difficult



Or provide additional support for low achievers in BL courses

## Study 2 How much time to spend online?



Four blends studied – High (50% online), Medium (36% to 40% online) , Low (27% to 30% online), Supplemental (100% F2F plus weekly online tutorials)



Supplemental blend least preferred



**High and Medium** blend students performed significantly better than those in the other two blends



**Implication** > consider at least 1/3 to 1/2 of course time devoted to online activities

# Study 3: Perceptions of large enrolment BL models



How do **student perceptions** of four different blended models compare on **design, interaction, learning, and overall satisfaction**?



What are the **strengths** and **limitations** of the four models for large enrollment blended introductory courses?

Class Lectures/Tutorials/  
Web-enhanced



CLTW

Class Lectures/Online  
Tutorials



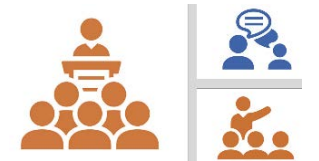
CLOT

Online Lectures/In-Class  
Tutorials



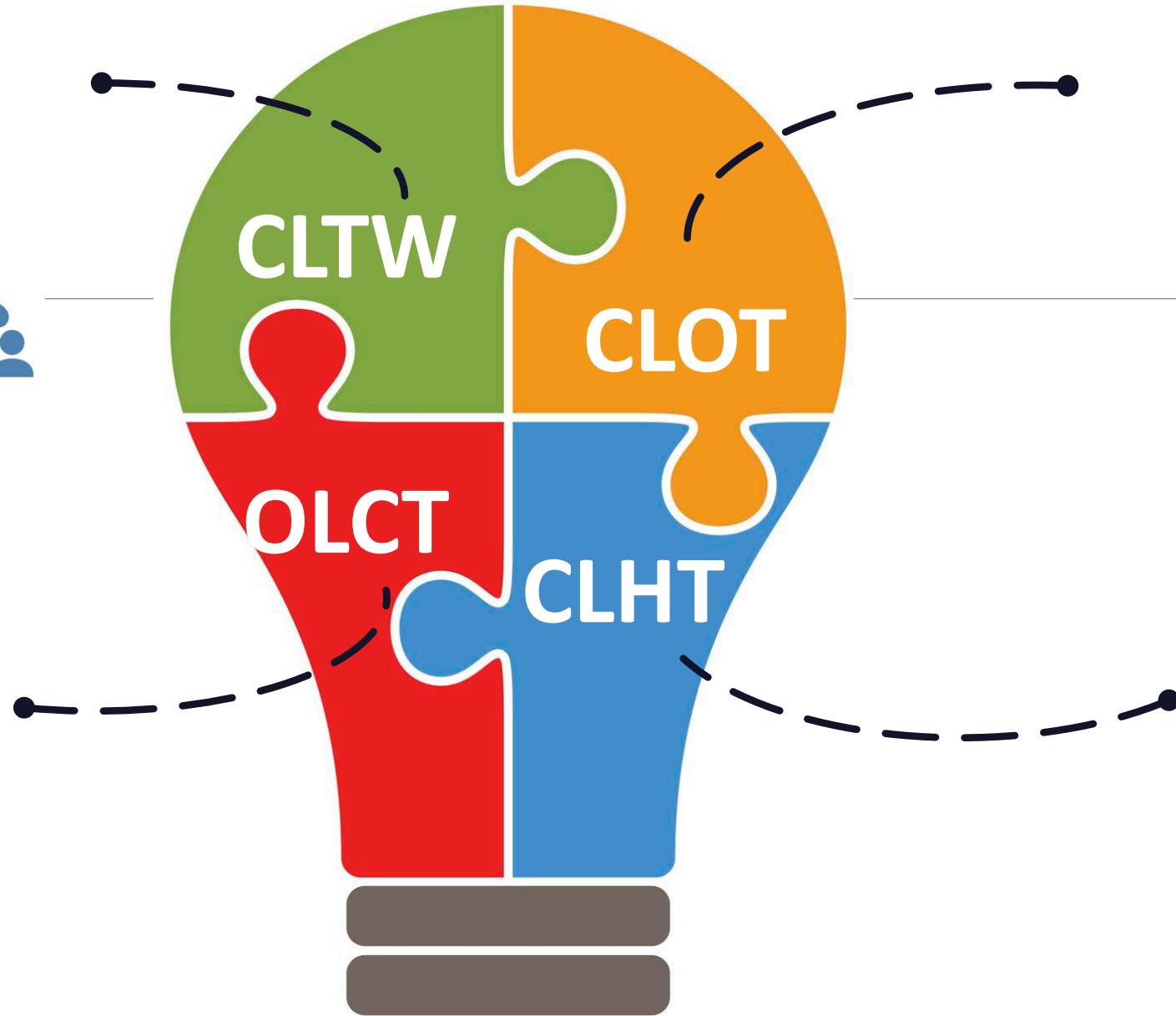
OLCT

Class Lectures/Hybrid  
Tutorials



CLHT

Four Blends





# Main finding Study 3

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**Online lectures with F2F tutorials** appears to be most desirable model overall for large enrollment classes.

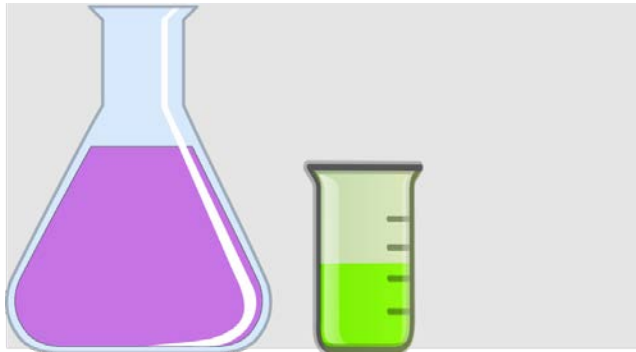
**Online/hybrid tutorials with F2F lectures** appear to be least desirable model.

# Study 4: STEM vs. non-STEM courses

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## STEM STUDENTS

**Achieved significantly higher**



## NON-STEM STUDENTS

**Higher perceptions!!!**



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# Overall implications for design

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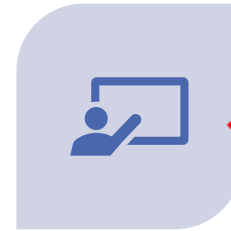
FOCUS ON LESS  
COMPLEX  
SUBJECT  
MATTER  
COURSES



PROVIDE  
SUPPORT FOR  
WEAKER  
STUDENTS OR  
CHOICE OF  
BLENDED OR  
F2F SECTIONS



DESIGN FOR  
1/3 TO 1/2  
ONLINE  
ACTIVITIES



USE ONLINE  
LECTURES  
AND F2F  
TUTORIALS  
FOR LARGE  
ENROLMENT  
COURSES



FOCUS INITIAL  
EFFORTS ON  
REDESIGNING  
STEM  
COURSES

# Follow up ...

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