

## Research Findings on Pedagogical Guidelines for Student Enrollment Sizes in Online Courses, and Moving the Evidence to Practical Application



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### Session 1: Research Findings on Pedagogical Guidelines for Student for Enrollment Sizes in Online Courses (75"), 2-3:15 pm

- Background
- Study methods
- Research findings
- Pedagogical theories – Bloom's taxonomy, Constructivist-Objectivist methods, Community of Inquiry
- Findings and Recommendations: pedagogy and class size



### Session 2: Moving the Evidence on Online Courses and Class Size to Practical Application(75"), 3:45-5 pm

- Meet in groups of 5-6. Select a nursing school course, undergraduate or graduate.
- As a group, discuss and analyze the course applying each of 3 pedagogical theories; use worksheet to score results for class size.
- Large group discussion on using the class size model. Discuss small group application experience, raise issues and questions.

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## Background



- Research on class size in online courses since 2010 (S. Taft)
- First research publication:  
Taft, S.H., Perkowski, T., & Martin, L. (2011). A framework for evaluating class size in online education. *The Quarterly Review of Distance Education*, 12(3), 181-97. (peer-reviewed) Available at:  
<http://digitalcommons.kent.edu/cgi/viewcontent.cgi?article=1000&context=nurspubs>
- AACN presentations on topic: February 2013 (webinar), February 2014 (Masters Conference), April 2017 (webinar); K. Kesten teamed up.
- Current completed manuscript under submission:  
One Size Does Not Fit All: Toward an Evidence-Based Framework for Determining Online Course Enrollment Size in Higher Education

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## Central question

What is the right balance between the university's interest in generating margins (“profits”) via online courses vs. faculty interest in the quality of the educational experience for the online students? Both must be served.

Related issues ....

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## Factors related to class size & teaching intensity



- The faculty role has expanded with the growth of online education. In addition to mastery of subject matter and pedagogy expertise, includes management of course technologies, media provider, & other new role tasks. Faculty teaching online need to have pedagogical knowledge and web skills as well as content expertise.
- Proficient online teaching now calls for continuous & time-consuming teacher learning.
- Many nursing faculty do not know or understand learning theories. They tend to rely on personal experience & intuition rather than knowledge about how to structure learning under varying conditions and at different levels of student knowledge proficiency.
- Students are increasingly diverse (e.g. age, ethnicity, gender identity, country of origin, race)

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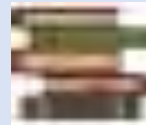
## Research Methods

- Searched on topic of “**class size in online education.**”
- Included articles on **faculty workload** as it pertained to class size, pedagogy, and student learning.
- Systematic literature review of **43 cross-disciplinary higher education journals** for class size-relevant articles between 2012 and 2016/2017; majority were on online courses, but some F2F and hybrid courses included. Journals selected based on their known relevance to the topic (journal list available).
- Many other single articles pre-dating 2012 or not part of the 43 systematically reviewed journals were included that were found in relevant articles' references or had come to the attention of the researchers.

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## Methods – cont.

- Conducted key word searches for articles through CINAHL, PubMed, Scopus, and ProQuest.
- Examined the table of contents for each issue of 43 journals over the 5+ year time period; reviewed titles and abstracts, identifying studies about class size, student learning, and pedagogical methods.
- Retrieved full texts of the pertinent articles.
- Annotated all selected articles.
- **Fifty-eight articles** included in review and results.



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## Results

- **Inconsistent findings** on the subject of class size and student performance/ outcomes, short- and long-term learning, critical thinking, engagement, satisfaction, etc.
- Limited studies (18) on specific number recommendations for class sizes.
- **A preponderance of relevant evidence** *does*, however, inform class size decisions.
- Literature review showed *extensive support* for using **3 pedagogical theories to inform and guide the determination of class sizes in online courses**. Each framework independently adds value to calculating pedagogical demand.
  - 1) Bloom's taxonomy,
  - 2) Objectivist-constructivist pedagogy, and
  - 3) Community of inquiry guidelines



See handout materials pp. 1-5

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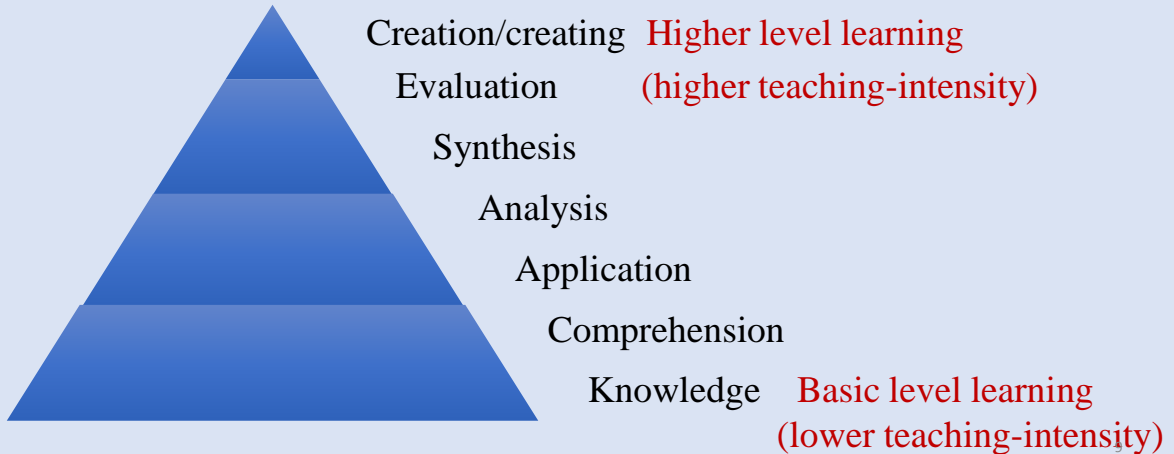
## Results, Review of 3 Theories – cont'd

•So, now what?



Brief review of 3 theories:

### 1. Bloom's taxonomy (handout pp. 1-2)



## Results, Review of 3 Theories – cont.

### 2. Objectivism vs. constructivism (handout p. 3)



**Objectivism** is teacher-centered. Students largely learn passively by receiving and assimilating knowledge communicated to them by the professor; tends to be factual & foundational information. Ex.: Basic Anatomy. **Lower teaching intensity.**

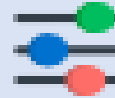
**Constructivism** is student-centered. Learning of new content results from interactions among students, peers, and faculty. Knowledge is discovered, comprehended, practiced, and validated by each learner to make it “their own.” Ex.: masters-level research. **Higher teaching intensity.**



## Results

### 3. Community of Inquiry Model\* (handout pp. 4-5)

Three *presences* in online courses:



#### a. Teaching presence – a faculty activity

- Course design & organization
- Facilitating discourse
- Direct instruction

The design, facilitation, and direction of learning in service of students' development of meaningful and educationally-worthy knowledge. Implementation of *all* of the activities associated with teaching presence is extensive, ranging from course design and syllabus construction, to course learning strategy methods, to regular faculty interactions with individuals and groups of students, to frequent formative and summative feedback.

**Full enactment of teaching presence increases teaching intensity.**

\* First developed by Garrison, Anderson, & Archer in 2000.

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## Results: Community of Inquiry – cont'd

#### b. Cognitive presence – a student activity

The extent to which students are able to demonstrate construction and integration of new meanings and knowledge through sustained learning. Full enactment of cognitive presence is dependent on faculty-student interaction and assignments demonstrating students' knowledge acquisition.



#### c. Social presence – a faculty and student activity

Ability of faculty and learners to project themselves socially and emotionally into a course, creating an identity as a "real person" in the online environment.

**Full enactment of cognitive and social presences increases teaching intensity.**

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## So what does this all have to do with online class sizes??



Our literature review consistently connected the 3 learning theories to class size. Higher levels on Bloom's taxonomy, more constructivist teaching methods, and full implementation of the community of inquiry are **teaching intensive**, thus requiring small class sizes.

Lower levels on Bloom's taxonomy, objectivist teaching, and partial implementation of the community of inquiry are low in **teaching intensity**, thus can accommodate large class sizes.

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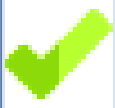
<b>Research Evidence of Pedagogies Needing Smaller Classes to Drive Intended Learning</b>	<b># of Articles</b>
1. Creating a learning community with substantive interaction and relationship development (student-faculty & student-student): student participation & collaboration, engagement; diverse perspectives; faculty and <small>student</small> social presence <b>b, c</b>	29
2. Developing students: frequent individual faculty feedback; development of creativity, research, writing, communication skills; full teaching & social presence <b>b, c</b>	22
3. Learning complex phenomena: critical thinking; deep learning; constructivist pedagogy <b>a, b, c</b>	17
4. Higher order learning: advanced content at the application level or above of Bloom's taxonomy <b>a, b, c</b>	13
<b>a. High Bloom's Taxonomy   b. High COI   c. High Constructivism</b>	cont'd next sld.

<b>Results of Research Evidence – cont’d</b>	<b># of Articles</b>
5. Learning from instructor’s inspiration: more challenge for and by students; increased motivation & enthusiasm; greater student progress; high social presence and interpersonal interaction <b>b, c</b>	6
6. High student diversity (lower SES, first generation, minority or international students); high individualized attention <b>b, c</b>	5
7. Specialization courses: basic English, writing-intensive, language learning; clinical competencies; high individualized feedback <b>b, c</b>	3
<b>a. High Bloom’s Taxonomy   b. High COI   c. High Constructivism</b>	

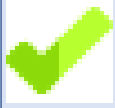
<b>Results – cont’d</b>			
<b>Specific findings on class size</b>			
Only 18 of 58 articles directly addressed class sizes. Terminology of “small, medium, or large” varied, and size recommendations were inconsistent/divergent.			
Small: 10 or less; 10-14; ≤ 15 students (4 authors)	Medium: 11-19; 15-30; 15-34 students (4 authors)	Large: 20-30; 35-49 students (2 authors)	Very large: 50+ students (2 authors)
Undergraduate or level-unidentified courses	13-15; maximum of 19; maximum of 20; <20 (two studies); 15-25; 8-30 students (7 authors)		
Specialization courses			
College English courses	20 students; 15 for basic skills courses (3 authors)		
College mathematics courses	30 students (1 author)		
Online synchronous courses, or practice skills courses	15 or fewer students (2 authors)		
Graduate courses	8-15; ≤ 25, but ≤ 20 students in specialization courses (4 authors)		
Doctoral level courses	≤ 12 students (1 author)		



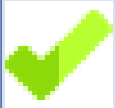
## Conclusions



Specific existing guidance on class sizes was too thin and inconsistent to draw any conclusions from current evidence.



Pedagogical methods were the *single* important finding for determining class sizes that both honored college needs for maximizing revenue *and* supporting student learning.



The 58 reviewed research articles implicitly or explicitly recommended that smaller, medium, or larger online class sizes be aligned with pedagogical characteristics of the three learning theories described earlier.



From our research, we are proposing specific class sizes that align with pedagogical characteristics and can be applied to online courses in schools of nursing.

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## Conclusions & Recommendations



### Research synthesis (see worksheet pp. 6-7)

- **Larger class sizes** (low teaching intensity, 31+ students, no known upper limit) are appropriate when knowledge acquisition is designed for: the lower levels of Bloom's Taxonomy (factual learning, comprehension, and beginning application of knowledge); delivery via largely didactic (objectivist) methods; assessment via testing; limited need for COI presences other than Course Design & Organization (see information on handout pp. 6-7).

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## Conclusions & Recommendations – cont'd

**Medium class sizes** (medium teaching intensity, 16-30 students) are appropriate when:

Students' targeted knowledge development is at mid-level in Bloom's taxonomy (application, analysis); can be reached by mixed constructivist-objectivist pedagogical methods; relies on partial implementation of the COI (e.g. teaching presence of course design and organization and facilitating discourse, but limited direct instruction; students' cognitive presence; and limited faculty/student social presence). Student knowledge assessment by a mix of testing and application activities. Determining appropriate class sizes would rely on a thoughtful assessment of learning objectives and teaching strategies (handout pp. 6-7).

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## Conclusions & Recommendations – cont'd

**Smaller class sizes** (high teaching intensity, 15 students or less) are appropriate when knowledge acquisition is designed for and targeted at:

the upper levels of Bloom's Taxonomy (analysis, synthesis, evaluation, creation); formative assessment via feedback to students; full implementation of COI teaching, cognitive, and social presence; delivery via constructivist methods and interaction; frequent faculty feedback (handout pp. 6-7).

Session two will provide practical application using a rubric and scoring to make this information usable. Take a break and return to work on it in a small group.

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## Session 2: Moving the Evidence on Online Courses and Class Size to Practical Application

- Gather in groups of 5-6. Select a nursing school course, graduate or undergraduate.
- As a group, discuss and analyze the course applying each of 3 pedagogical theories (in columns); use worksheet and circle the row closest to the course pedagogical characteristics under each of the 3 theories (pp. 8-9). Add up points from each column to determine the class size results; identify the course size fitting your sum.
- Your group will have until ~4:15 pm to complete this exercise; begin on a 2<sup>nd</sup> course if you have time.



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## Large group work and discussion

Discuss small group course application experience; raise issues, questions.



Karen and Susan will stay after session to address individual concerns and questions.

Please complete your session evaluations!

*Note:* those participants who would like any of our materials not distributed today, both from these sessions and from the April webinar, should give Susan their card, or contact her, and she will email to you (staf@kent.edu).

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