Online instruction in the area of exercise and sport science—course design, research & suggestions

Part A

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Reasons for my interest

- Previous research
  - Limited research about online instruction in the area of ESS/PE.
  - Effective instructional method for other areas (i.e. business, mathematics)
- The UNC system
  - Goal: "everyone" has access to higher education.
  - Distance education is being promoted, including online education.
- Ever-growing number of individuals who do little/no physical activity…
  - This course is designed to promote lifetime fitness.
  - Offering the course online has the potential to impact a larger population.
  - Potential to teach more people the benefits of physical activity, and ultimately get them moving.

Lack of Physical Activity

- Approximately 60 % of American Adults are not physically active enough for health benefits
- Approximately 25% do no physical activity
- Approximately 6 million American children are fat enough to cause health problems
- Lack of physical activity is one of the major contributors to Cardiovascular Disease and Diabetes

THE BIG QUESTION

- How can we get people the information they need to understand the importance of physical activity and ultimately get them moving?

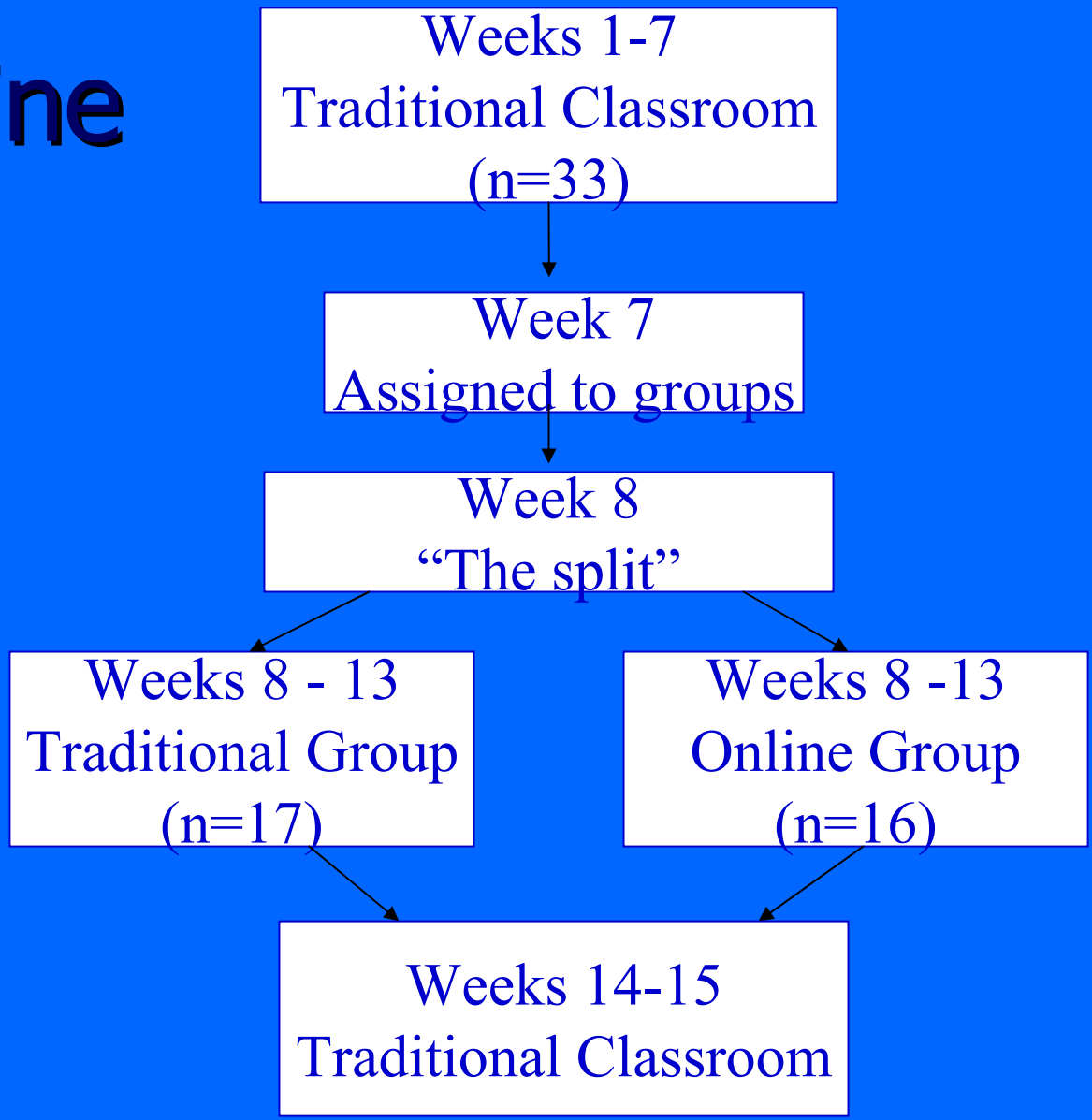
  ...offering a course such as Physical Fitness for Life is one possible method

  ...offering the course online may potentially allow the University to impact a larger population

Research Purpose

- A dissertation project to compare instruction and instructional outcomes regarding selected units (Nutrition, Fitness Programs, Weight Management) in one UNCG Fitness for Life course, ESS220-06, during the 6 weeks that one group of students was taught in the traditional classroom versus another group of students who received the same information online (Asynchronous).

Timeline


Weeks 1-7
Traditional Classroom
(n=33)
Week 7
Assigned to groups
Week 8
"The split"
Weeks 8 - 13
Traditional Group
(n=17)
Weeks 8 -13
Online Group
(n=16)
Weeks 14-15
Traditional Classroom

Research Questions:

1. Did students learn more selected unit content in the traditional classroom or online?
2. Was student exercise self-efficacy affected more as of a result of participation in the selected units in the traditional classroom instruction or online instruction?
3. Did students become more physically active as a result of participation in the selected units of traditional classroom instruction or online instruction?
4. Which method of instruction in the selected units was more time consuming for the student, traditional classroom instruction or online instruction?
5. How was instructor experience different in the selected units when teaching them in the traditional classroom compared to teaching online?
6. What was the opinion of the online students about their online experience while learning the selected units versus their experience in the traditional classroom?

Results

Question 1 Did students learn more selected unit content in the traditional classroom or online?

- Weeks 8-13*
  - Assignment grades
    - Online group > Traditional group**
  - Exam 2
    - Online group > Traditional group
    - Online felt they had studied harder and actually read the text during the split
- Overall final grades
  - Online group > Traditional group
    - Group average 91.07 vs. 88.20
    - 9 A's vs. 6 A's

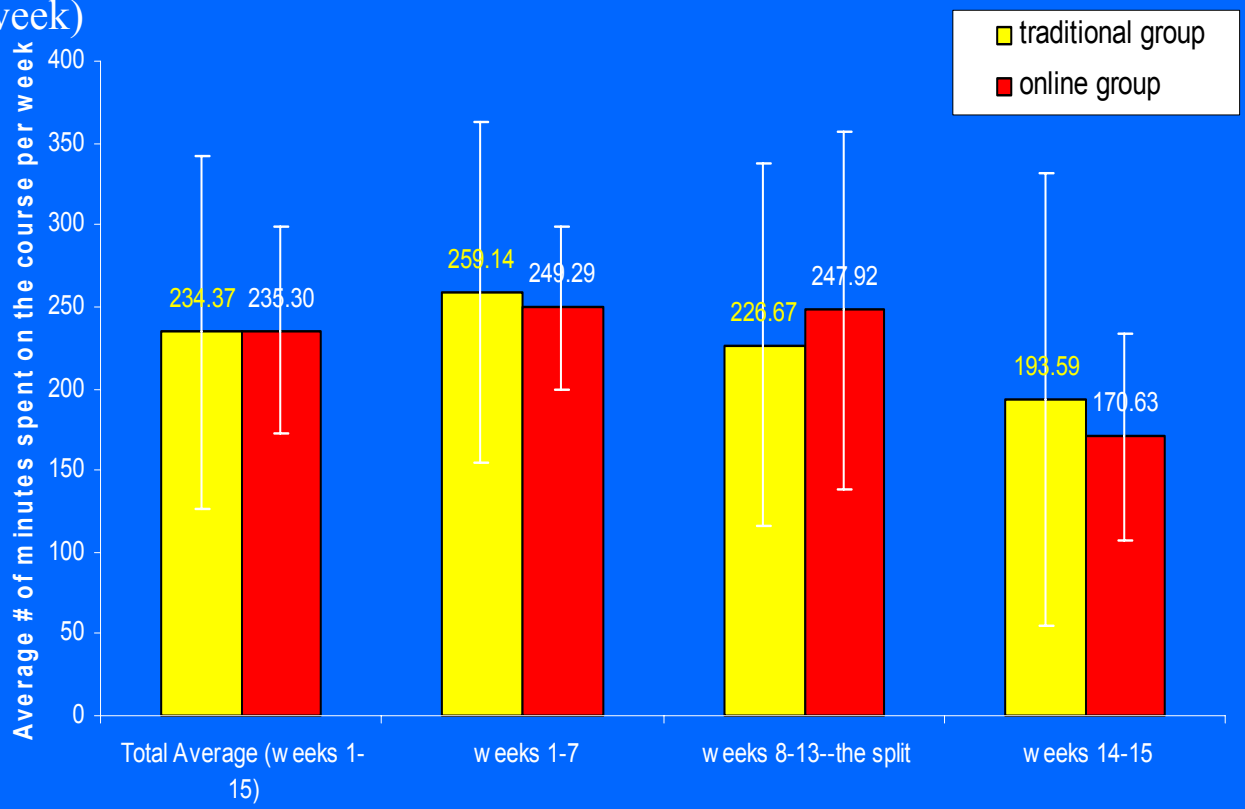
- Online group said they were more academically focused online
- Online group did better throughout the course
  - Possibly due to previous university experience***
  - Claimed to be more independent learners****

Physical Activity (Questions 2 & 3)

- The online group showed a slight increase in self-regulatory self-efficacy, indicating an increased confidence in their ability to overcome exercise barriers.
- Exercise self-efficacy and actual physical activity levels (METS) was greater for the online group throughout the course.
- The traditional group showed an increase in the amount of physical activity (METS) from week 1 to 14 (ACLSPAQ), however, the increase was minimal when specifically looking at their activity levels during the split (GLTEQ).
- The online group reported a slight decline in physical activity from week 8 to 14, however, they attributed this decline to exams, school breaks and completion of sports seasons. Two students did attribute the decline to not having to walk to class.

Question 4 Which method of instruction in the selected units was more time consuming for the student, traditional classroom instruction or online instruction?

Weekly average of time spent on course (minutes/week)



Question 5 How was instructor experience different in the selected units when teaching them in the traditional classroom compared to teaching online?

- Advantages of Online
  - Convenient
  - Easy to communicate to all students in class via Blackboard 5 (BB) announcements
  - Updates and important information available to students from any computer with Internet connection
  - Quiz feature on BB was useful for providing immediate feedback to students
  - Discussion Board—record of discussion and students who don't always speak up in class were active in discussion
  - Smaller class sizes allowed for more interaction in both groups

- Disadvantages of Online
  - More time consuming
    - 20 hrs+ vs. 5-7 hrs/week*
  - Challenges of collecting assignments
    - Time consuming
    - BB vs email attachments
    - Hardcopies from BB were considerably larger
    - Unable to convert BB "quizzes" into Word document for storage or printing

Question 6 What was the opinion of the online students about their online experience while learning the selected units versus their experience in the traditional classroom?

- Initially
  - Concerned about
    - Missing information by not being in class for discussions
    - Self-motivation
    - Delay in getting answers from instructor when needed (wait for email response)
  - Excited
    - Not have to come to class/campus
    - Time to do physical activity during the day and schoolwork at night
    - Convenience and flexibility of when to "attend" class
- Post split
  - Both groups increased comfort level with BB
  - Increased comfort with threaded discussions
  - Enjoyed online instruction
  - More academically focused online
  - Had to study harder and read the text (something they said they had not really done before) in order to do well on assignments and exam 2 during the split

Conclusions

- Offering selected units of ESS 220-06 online was an effective method for teaching this course based on academic performance.
- Students were positive about the online portion of the course and felt they would take another course online if given the opportunity.
- Physical activity was affected more in the traditional classroom group BUT much this group's physical activity level was lower initially (ACLSPAQ traditional 45 METS vs. online 81 METS).
- Instructor felt teaching online was enjoyable and effective. Her biggest concern was the increased amount of time involved in teaching the course.
  - Faculty load a potential concern.
- Potential to reach a larger population by offering the course online, and potentially help reduce the ever-growing number of adults who do little/no physical activity.

Limitations

- Small number (n) of participants
- Intact class—not true random sampling
- Questionnaires to measure physical activity levels rather than actual fitness assessment
- Not account for the participants readiness to change (i.e. Transtheoretical Model of Change)
- No clear evidence whether or not these types of courses elicit physical activity changes

Future Research

- Continue to explore how to effectively offer selected units of this course and other ESS/PE courses online
- Larger n
- True random sampling, if possible
- Offer the entire course online vs. selected units of instruction
- Fitness assessments
- Utilize synchronous discussion

Terminology

- ACLSPAQ=Aerobics Center Longitudinal Study for Physical Activity Questionnaire; week 1 and 14 physical activity (PA) measure
- GLTEQ=Godin Leisure-Time Questionnaire, week 8 & 14 PA measure
- MET= metabolic equivalent used to measure PA levels; higher MET = higher PA level
- Exercise self-efficacy=one's confidence in their ability to exercise for a specific time period
- Self-regulatory self-efficacy=one's confidence to overcome specific barriers that might prevent them from exercising
- MOO=multi-user, object-oriented learning environment (synchronous)
- Blackboard 5=comprehensive e-learning software platform for course management.

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Part B

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Synchronous Discussion

MOO

- MOO (multiple-user domain, object-oriented) is text-based virtual reality software
- Allows multiple users to connect via the Internet to a shared database of rooms and other objects and interact with each other and the database in synchronous time.

MOO

- Advantages
  - User-friendly
    - Faculty
    - Students
  - Synchronous discussion along with slide presentation
  - Free (hosted by University of Texas at Dallas)
  - Low-Bandwith
  - Customizable

ESS 341—Physical Education for the Classroom Teacher

- HHP Instructional Technology Innovations Project
- Course involves a variety of group discussions on some controversial topics—often students unwilling, uncomfortable or unable to participate in face-to-face discussion.
- Hoped using MOO would enhance small group discussion by overcoming these "barriers" and better prepare the class for further discussion of the topics and related materials in the traditional class setting

Course Design

- Students meet in the classroom (gymnasium) for lectures, discussions, activities and teaching (peers and elementary-aged children).
- Students assigned readings for small group discussions. Following the small groups, students "share" their discussions with the class.

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Developmentally Appropriate Physical Education

1. Recognizes and promotes children's changing capacities to move
2. Takes into consideration individual characteristics of children, such as level of development, prior movement experiences, fitness and skill levels, body size, and age

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Vignettes

1. The PE teacher, Ms. Jones, likes basketball and is the assistant basketball coach at the high school. She spends fifteen weeks each year on a basketball unit with 2nd and 3rd graders. The units include skill drills and then teams of five playing each other (40 students), with a round-robin tournament the last week of unit (only 2 games take place at one time). The basketball goals are 10ft regulation size and since funds are limited, the balls are old high school balls.

2. It is a state requirement that all students K-9 be administered the Presidential Physical Fitness Test twice a year. Mr. Smith, the 4th grade classroom teacher, offers to administer the test to his students. Many of the students are complaining and dread participating. Mr. Smith tells them to "suck it up", and "just do it". Mr. Smith has students perform one at a time. Some of the students laugh and tease those students who do not do as well.

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uestions (cont.)

Discuss the list of Hall of Shame Games.

- List the games included in both the current articles and the 1992 article.
- Do you agree (or disagree) with the inclusion of these games on the list? Explain why/why not?
- Select two of the games included on the list and determine how to modify these games to make them more appropriate.
  - Identify the game, how you would modify it and why this would make it more appropriate.
  - Develop a mini-lesson for one of these games. Include the age/grade/developmental level of the participants and the tasks they will complete. What are the objectives of the lesson and how will you determine if they have been met these objectives.

Challenges

- Initially students need time to learn how to navigate and utilize MOO effectively
  - In-class meeting in computer lab to allow for questions as go through a mock MOO session
  - After 2nd meeting most students felt fairly comfortable with the actual workings of MOO
  - Guide for beginners on website
- Students occasionally had difficulty accessing from home (i.e. they did not know about firewalls and/or forgot their passwords)
- Possibly a little more time consuming preparing for the course initially since you must post your slides to the web

Positive Outcomes

- Instructor felt the discussion was much more in depth when the students were in small groups online vs. similar face-to-face (f2f) discussions
- Instructor had a transcript and summary of all that transpired in the discussion group as compared to monitoring small groups in a f2f setting (also available to classmates)
- Students who were unable to attend session could go back and read transcript and view slides (links are included in the transcript)
- Students felt they were more willing to comment "behind" their computer screen & also could make comments as compared to f2f when one person may dominate the conversation

Suggestions

- Make most slides available prior to course meeting so students can review and also have available when they leave the main classroom
- Meet class in computer lab for mock MOO session alleviate some problems with using MOO
- Save and post transcripts so students can access in the future
- Very effective for small groups, do not try to use for entire group discussions—can't keep up with all of the comments

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