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A CASE STUDY OF BLENDED LEARNING IN HIGHER EDUCATION: DRIVING A MEANINGFUL COMMUNICATION IN SEMINARS FOR SCIENCE AND TECHNOLOGY EDUCATION RESEARCH

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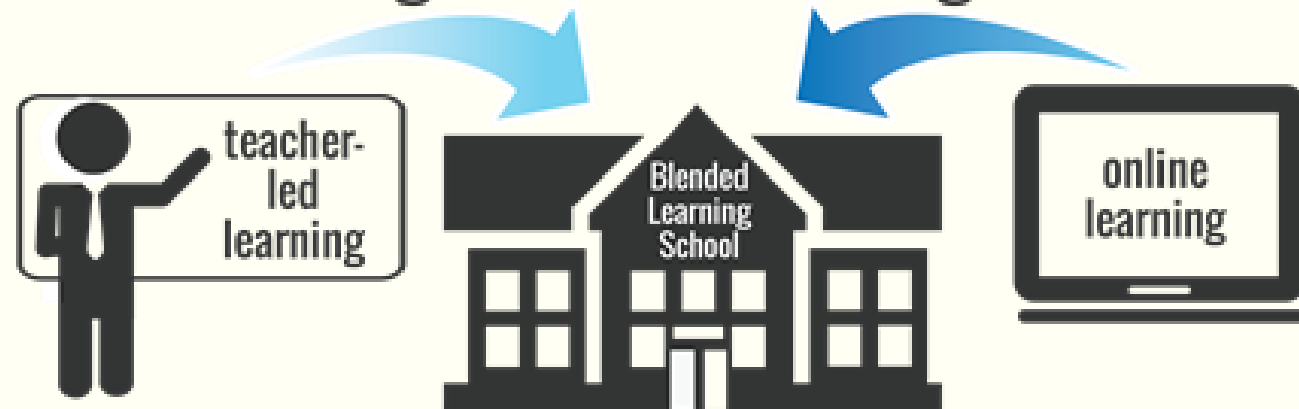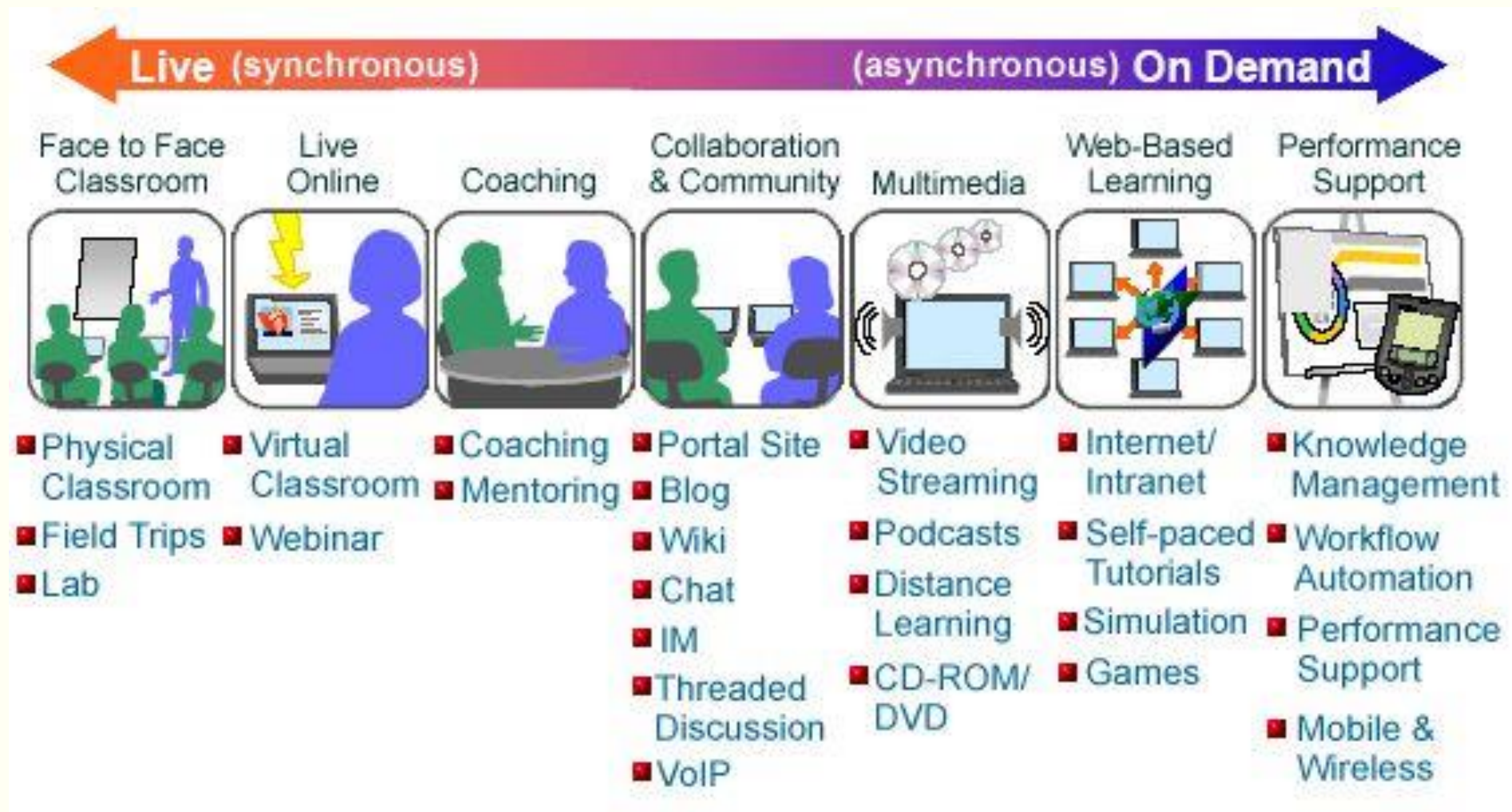
What is blended learning?

http://blendedandflexiblelearning.wikispaces.com/what-is-bfl

https://sites.google.com/site/blendedlearningintheclassroom/

What is blended learning?

http://www.greeleyschools.org/Page/13456

Learning Delivery Mode

Key Component for Blended Learning

e-TQM College Blended Learning Approach
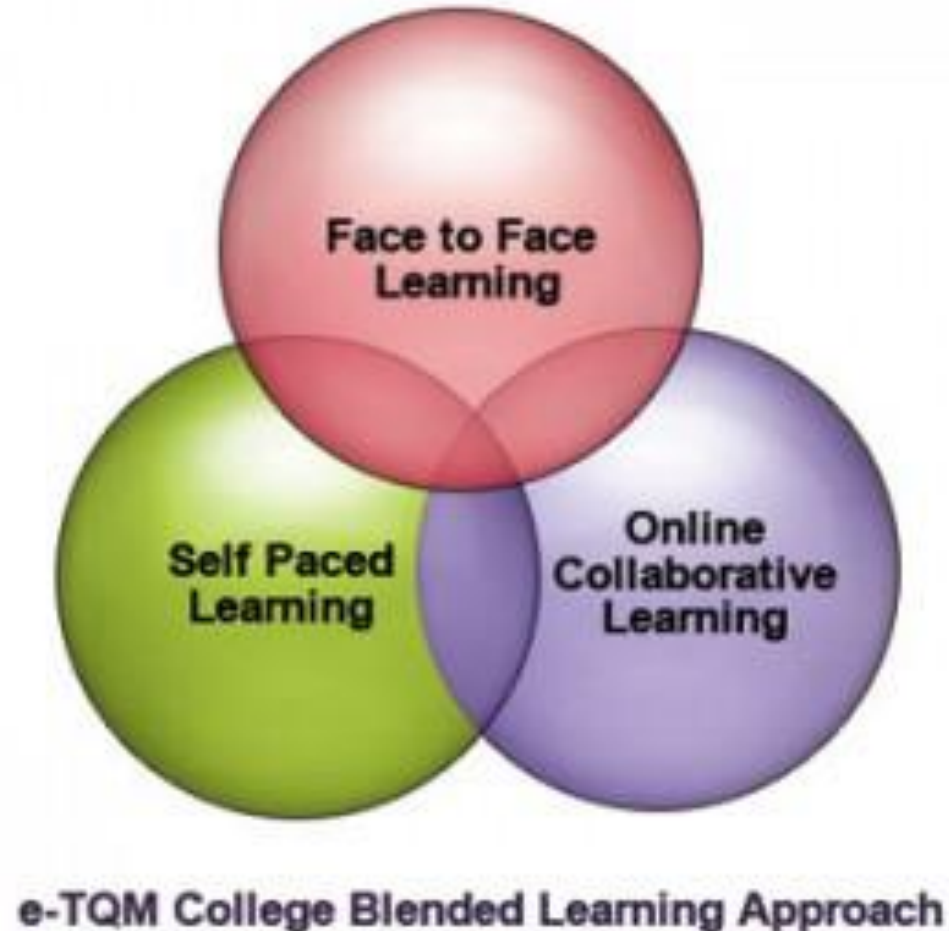
Blended Learning Model

https://www.odysseyware.com/blended-learning

http://sublimestudies.com/welcome/tag/blended-learning/

http://www.slideshare.net/DavidSquire1/benefits-blended-learning-29770782

Objectives:

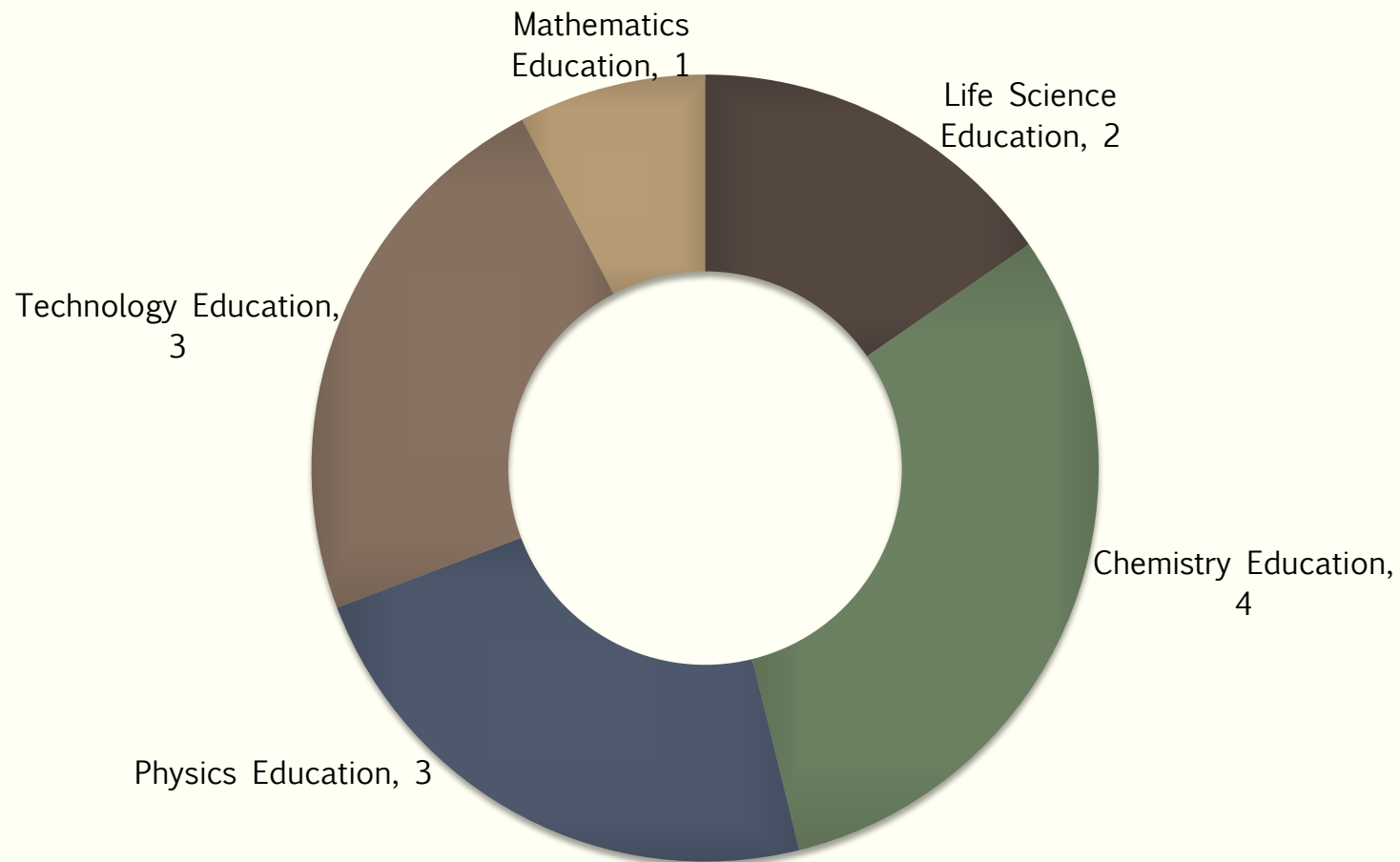To motivate a meaningful discussion and effective presentation

http://sxsw.com/interactive/news/2013/sxsw-interactive-workshops-bringing-fun-excitement-continuing-education

Research Objectives

- To develop a blended learning unit for seminars in science and technology education

- To assess students' skills in discussion and presentation

- To determine students' attitude toward a developed blended learning unit

Participants (Total = 13)

Majoring of graduate students
who enroll in seminar course (Year 2013)

Mathematics Education, 1

Life Science Education, 2

Technology Education, 3

Chemistry Education, 4

Physics Education, 3

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To assess students' skills in discussion and presentation

- Presentation Evaluation Criteria

- Classroom Observation

- Students' Document

Presentation Evaluation Criteria (Debate)

::: Individual Evaluation :::

To Flip

Items	Student 1	Student 2	Student 3
1. Argument: relevant reasons in support the topic (5 points)			
2. Rebuttal: effective-counter arguments (3 points)			
3. Understanding of the topic: viewpoints outlined clearly and accurately (5 points)			
4. Evidences: recently published, convincing and relevant supporting evidences (5 points)			
5. Organization and time management: all information well-organized and presented in the given time (2 points)			
Total (20 points)			

Presentation Evaluation Criteria (Debate)

::: Group Evaluation :::

To Flip

Items	Point(s)
1. Organization: information was clearly tied to an idea and organized in a tight, logical fashion (5 points)	
2. Collaboration: team-work performed (5 points)	
3. Information: information presented in this debate was clear, accurate and thorough (5 points)	
4. Delivery: information was presented with clarity in appropriate volume (5 points)	
Total (20 points)	

Presentation Evaluation Criteria (Oral Presentation)

Criteria	Full Score (points)	Student 1	Student 2	Student 3
Knowledge & Understanding in Research on Development of Learning Innovations - Communicates a clear explanation and of topic that shows *a good understanding* of topic and audience. - Provide clear *purpose* of the study - Determine *appropriate information* for developing an innovations for learning, e.g. ideas were supported by evidences	10			
Organization and Communication - Provide a pertinent data and logical flow of information. - Seminar was organized in a highly effective manner. - Communicates in a clear manner, using vocal strategies well. - Adhere to time requirement *(20-min presentation!)*.	5			
Thinking: Discussion during Q&A session - Able to answer questions in logical fashion and has the *ability to think* on his/her feet. - Uses some discussion questions that lead to a sharing session - Draws connections between audience questions & topic - Communicates original ideas and inferences	5			

To assess students' skills in discussion and presentation

- **Scientific and Educational Knowledge Presentation**
  (High Score)

- **Organization and Communication in Effective Manner**
  (Excellent Score)

- **Thinking Ability during Discussion**
  (High Score)

To determine students' attitude toward a developed blended learning unit

- Course Evaluation Questionnaire (4.59 out of 5 scores)

- Students' Reflection

- Students' Interview

Students' Reflection (Attitude toward course)

100% Positive Attitude toward course
- Useful and gain knowledge from guest speakers
- Benefit for their research work
- Helpful in improving presentation and communication skills
- Activities in the class is interesting

100% agreed that debate provided a good experience and would like to use debate for the next batch
- Provide lots of opportunity for students to learn and interact with peers (more involvement)
- Encourage to learn out of class and exchange ideas in class
- Good practice for both presentation skill and critical thinking skills especially when arguing opponent statements

However
- It is difficult in the limited of time

Students' Interview

What did you gain from the class?

In this class I learned through direct experiences on how to present effectively from guest speaker and from the debate

What did you feel with debate?

I learned a lot from debate. I learned how to work collaboratively with team member and also learn in-depth knowledge than usual. We firstly separated the work into pieces like jigsaw. Everyone in team had to respond for their topics by searching and presenting to team member many times. We helped each other to improve our group debate. Moreover we had to think both pros and cons of our group topic and the opponent topic which made me have a clear understanding in that topic.

I like debate activity most!

Students' Interview

What did you feel of having Facebook group to support learning in this class?

For me, Facebook is a convenient and helpful tool to communicate with friends in the class. It is easy to use and shorten time for contact and sharing with friends..........

Actually our group created own Facebook for helping is discussion and sharing ideas during debate. Moreover we had the other Facebook group (no instructors as members in this group) for communicate within a classmate.

Students' Interview

If you had to organize seminar course, what would be your course outline?

I will firstly introduce how to be a good presenter by inviting guest speaker to give talks for students. Then I will have a debriefing session of important of seminar and how to communicate effectively. Finally I will ask students to present their work which I will use debate as an activity for presentation.

Conclusion

- After intervention, students' gained more discussion and presentation skills. (+ collaboration skill)

- Students had positive attitude toward the intervention.

- Debate is the most preferable activity.

- In the further study, researcher should create more comfort environment for students to share their ideas on-line via Facebook group