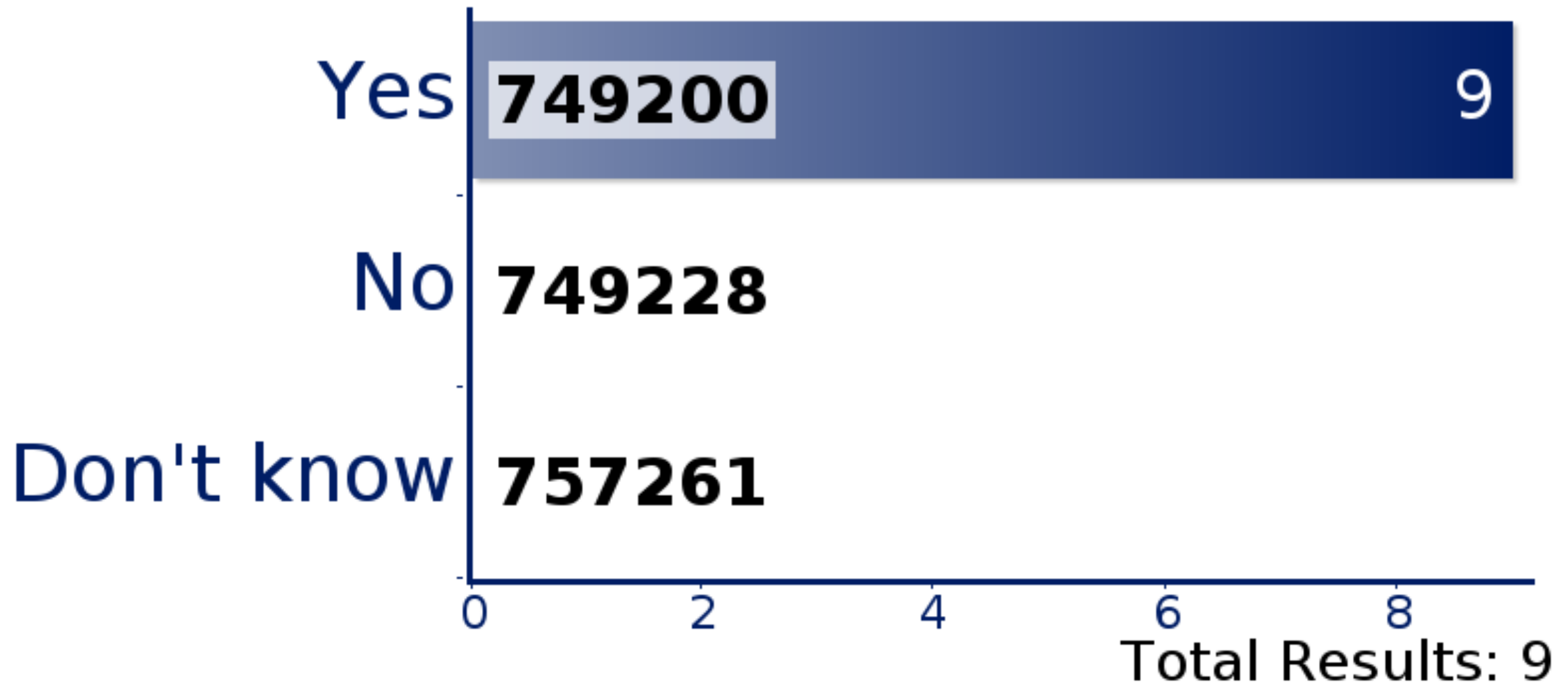# Synchronous and asynchronous video conferencing tools in an online-course: Supporting a community of inquiry

David Wicks, Seattle Pacific University
Andrew Lumpe, Seattle Pacific University
Janiess Sallee, Valley Christian School

Do you use asynchronous communication tools (i.e. threaded discussion forum, email) in your online course?
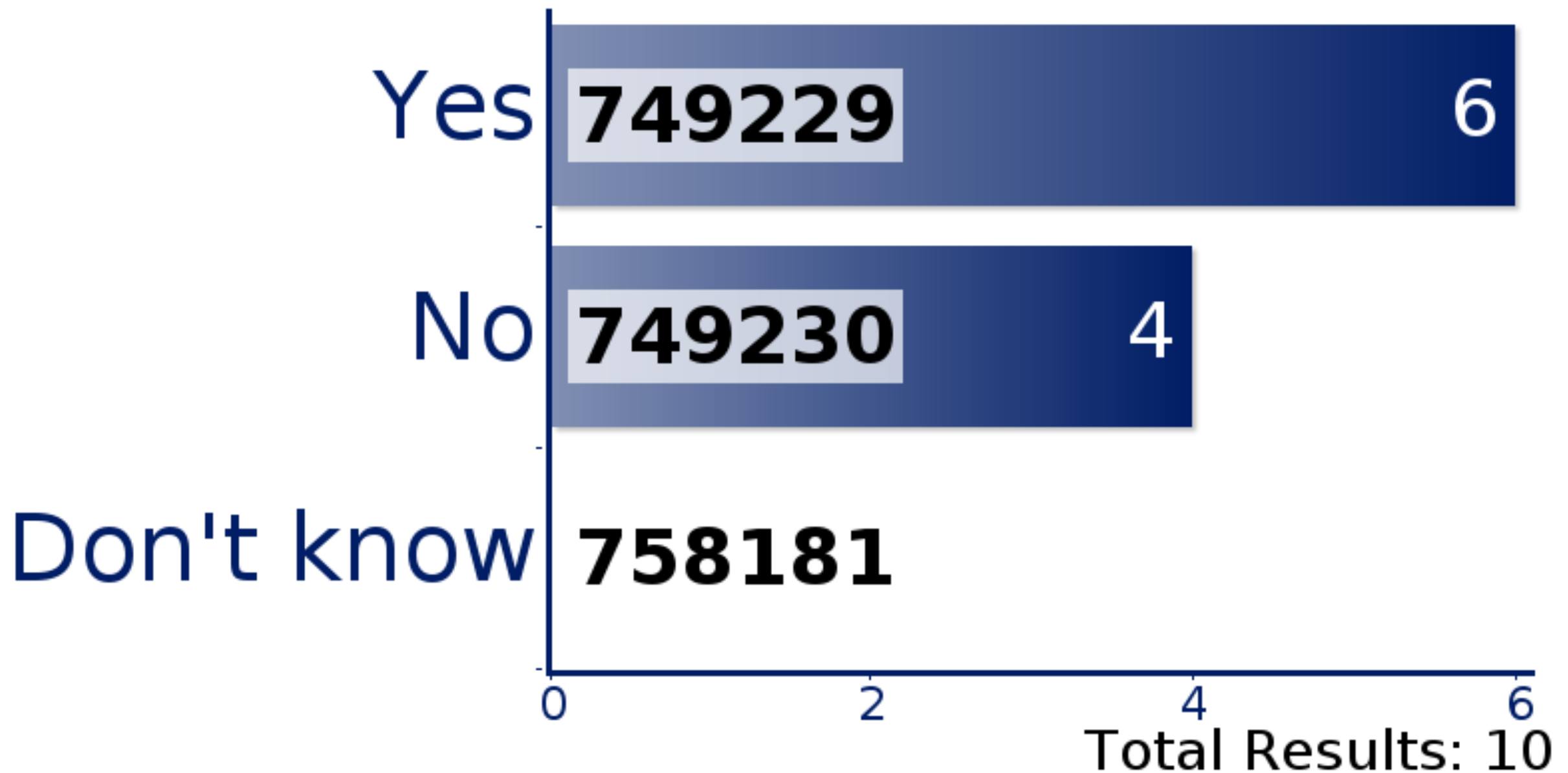
You may respond at **PollEv.com** when the presenter pushes this poll

Text a **CODE** to **37607**

Yes	**749200**	9
No	**749228**	
Don't know	**757261**	

0 2 4 6 8

Total Results: 9

Introduction

- What benefits/challenges does a/ synchronous video present for online instructors and students?

- What role (if any) should synchronous video conferencing tools play in online courses?

- What role can a/synchronous video play in advancing a community of inquiry?

Asynchronous Communication

Advantages

- Convenient
- Flexible
- Grants additional time for reflection and preparation of responses
- Provides record of activity

Drawbacks

- Text-based communication lacks nuances of speech and personality
- Delays in responses can create feelings of disjointedness or isolation

Borup, West, & Graham, 2012
Carr, 2000
De Wever, Schellens, Valcke, & Van Keer, 2006
Garrison, 2011
Meyer, 2004
Song, Singleton, Hill, & Koh, 2004

Synchronous Communication

Advantages

- Bridges perceived distances in space and time

- Learners receive immediate feedback

- Audio and video help capture personality

- Activities can be recorded for later review
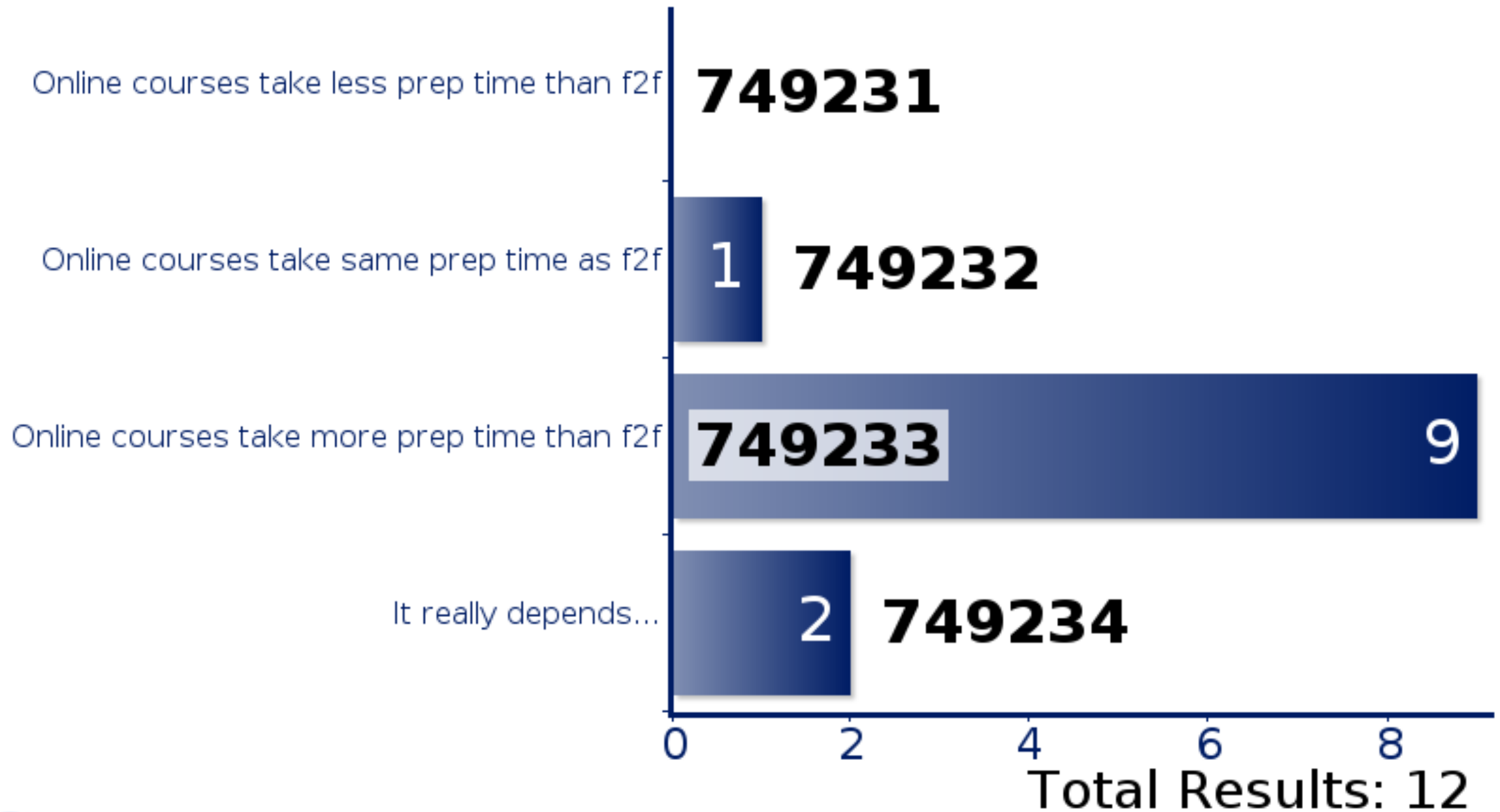
Drawbacks

- Lacks some flexibility in that participation requires a specific time commitment

- Doesn't always accommodate learners needing more time to reflect before responding

- Not all students want to broadcast themselves

Caladine, Andrews, Tynan, Smyth, & Vale, 2010, p. 250
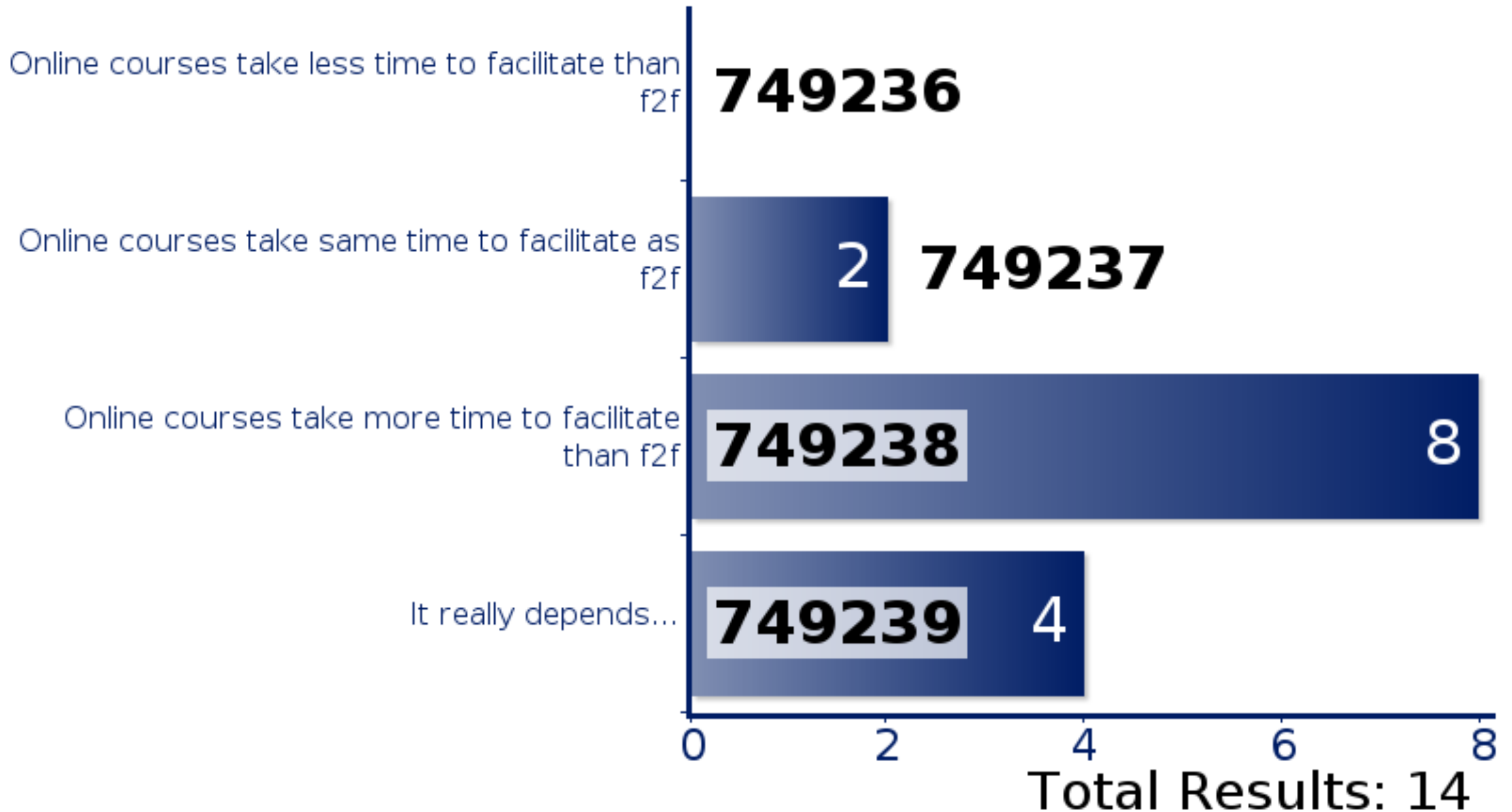Zhao, Lei, Yan, Lai, & Tan, 2005

Prep Time

You may respond at **PollEv.com** when the presenter pushes this poll

📱 Text a **CODE** to **37607**

Online courses take less prep time than f2f **749231**

Online courses take same prep time as f2f | 1 **749232**

Online courses take more prep time than f2f **749233** | 9

It really depends… | 2 **749234**

0   2   4   6   8

Total Results: 12

powered by **Poll Everywhere**

Live Audience Polling

7

Facilitation Time

You may respond at **PollEv.com** when the presenter pushes this poll

Text a **CODE** to **37607**

Online courses take less time to facilitate than f2f **749236**

Online courses take same time to facilitate as f2f **2** **749237**

Online courses take more time to facilitate than f2f **749238** **8**

It really depends… **749239** **4**

0   2   4   6   8

Total Results: 14

Potential Challenges for Educators

- Existing belief: process of preparing for and facilitating an online course is more time consuming

- Need to rethink approach: move from teacher-centered to student-centered approach

- Some students maybe overwhelmed by uses of multiple technologies in the same course

Allen & Seaman, 2013, p. 22
Caladine, Andrews, Tynan, Smyth, & Vale, 2010, pp. 253-254
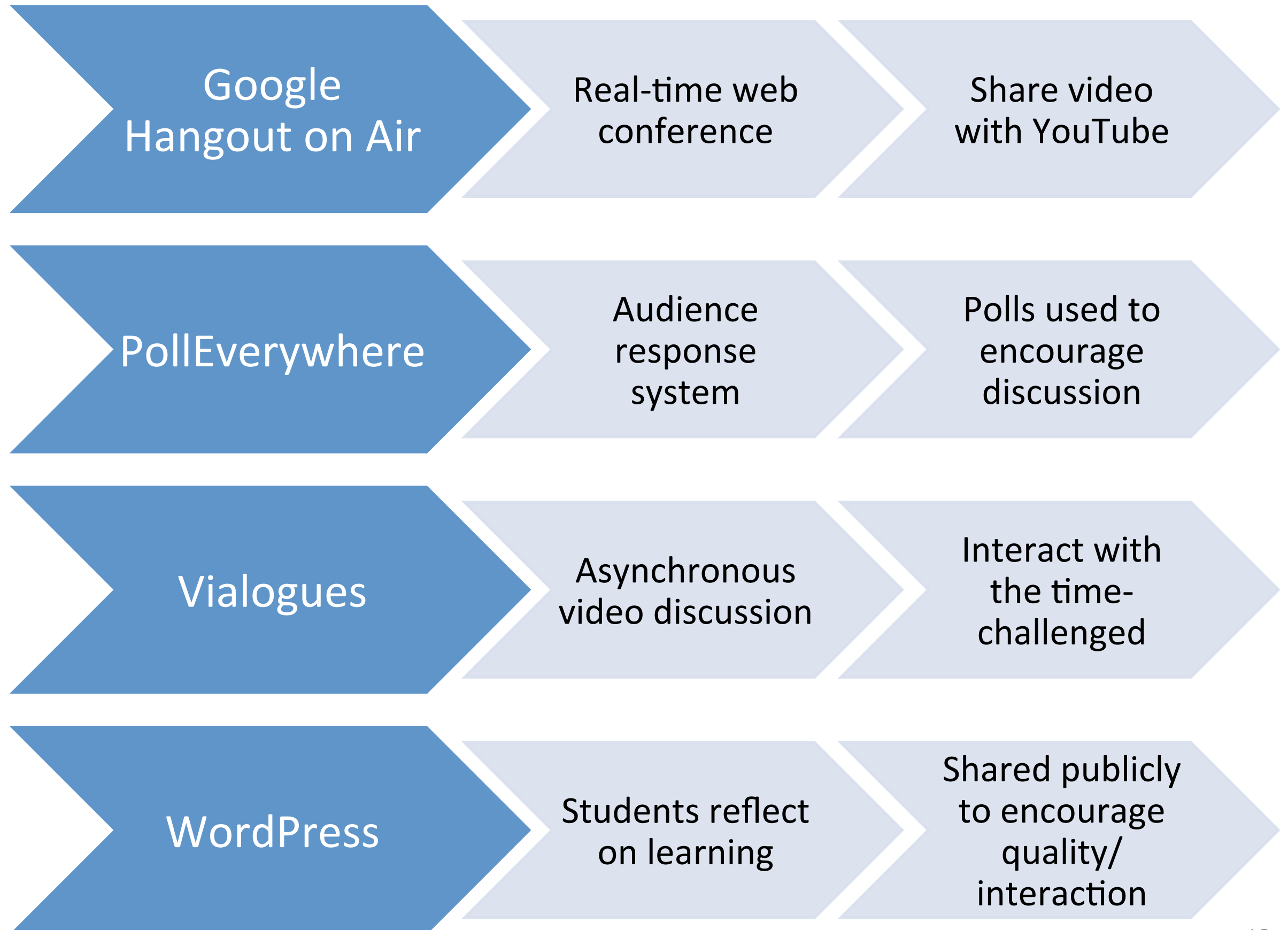
Community of Inquiry
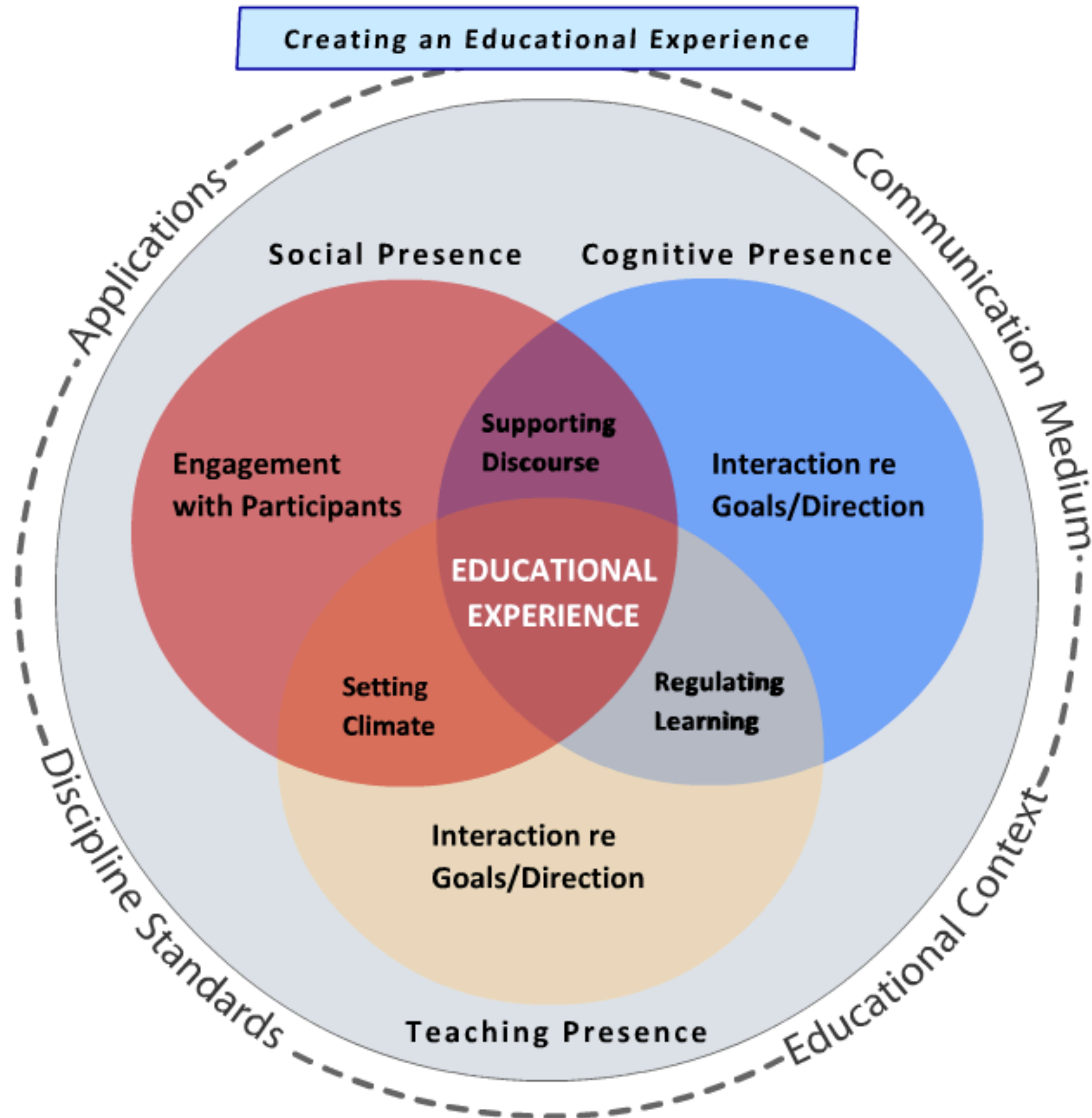
Practical Inquiry Model
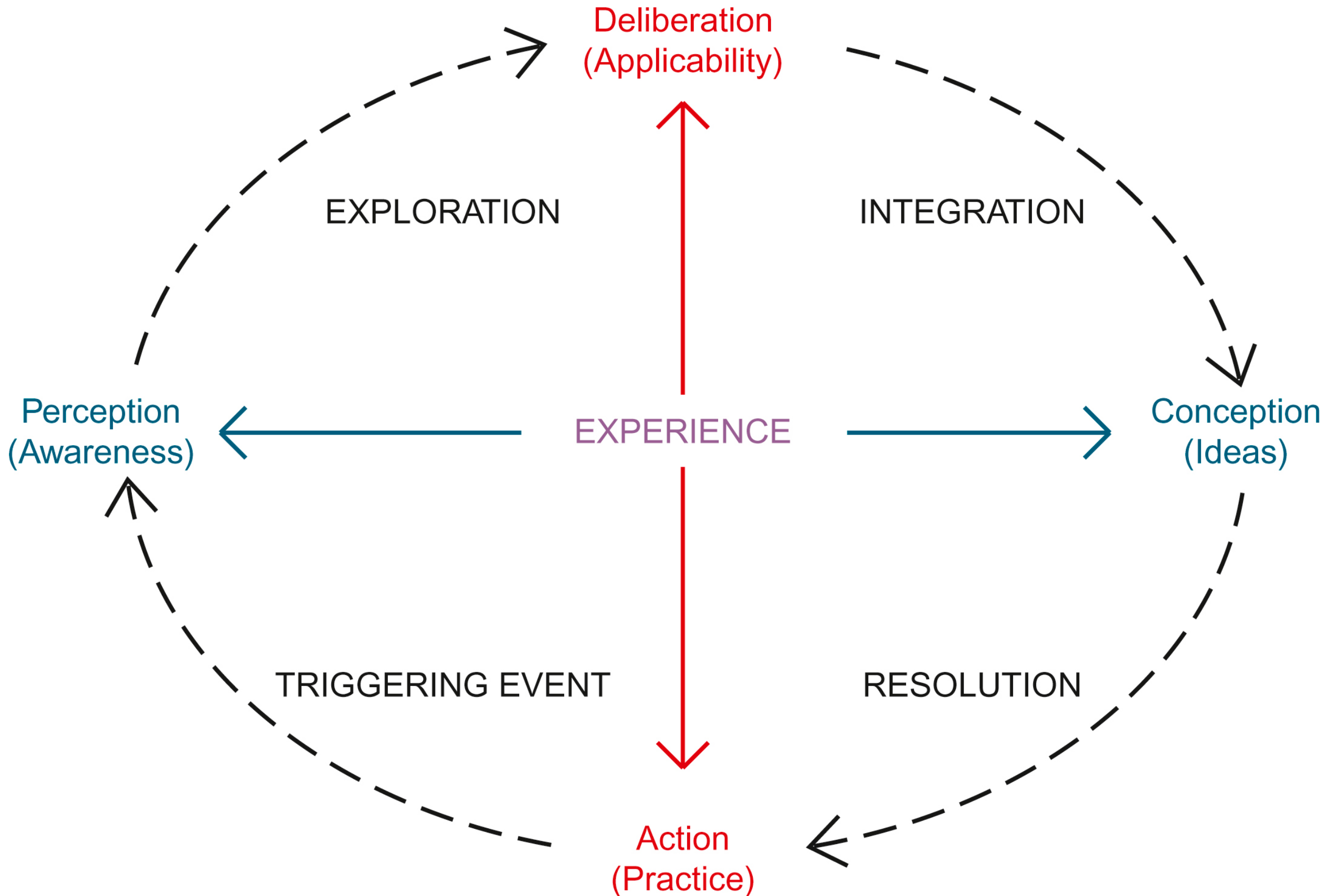
Methods

- Mixed methods study
- Weekly examination of:
  - Google Hangout transcripts
  - Vialogues time-coded, threaded discussions
  - WordPress blog posts containing student reflections
- Participants
  - 13 grad students
  - Taking online instructional technology course

Model for using synchronous/asynchronous video tools

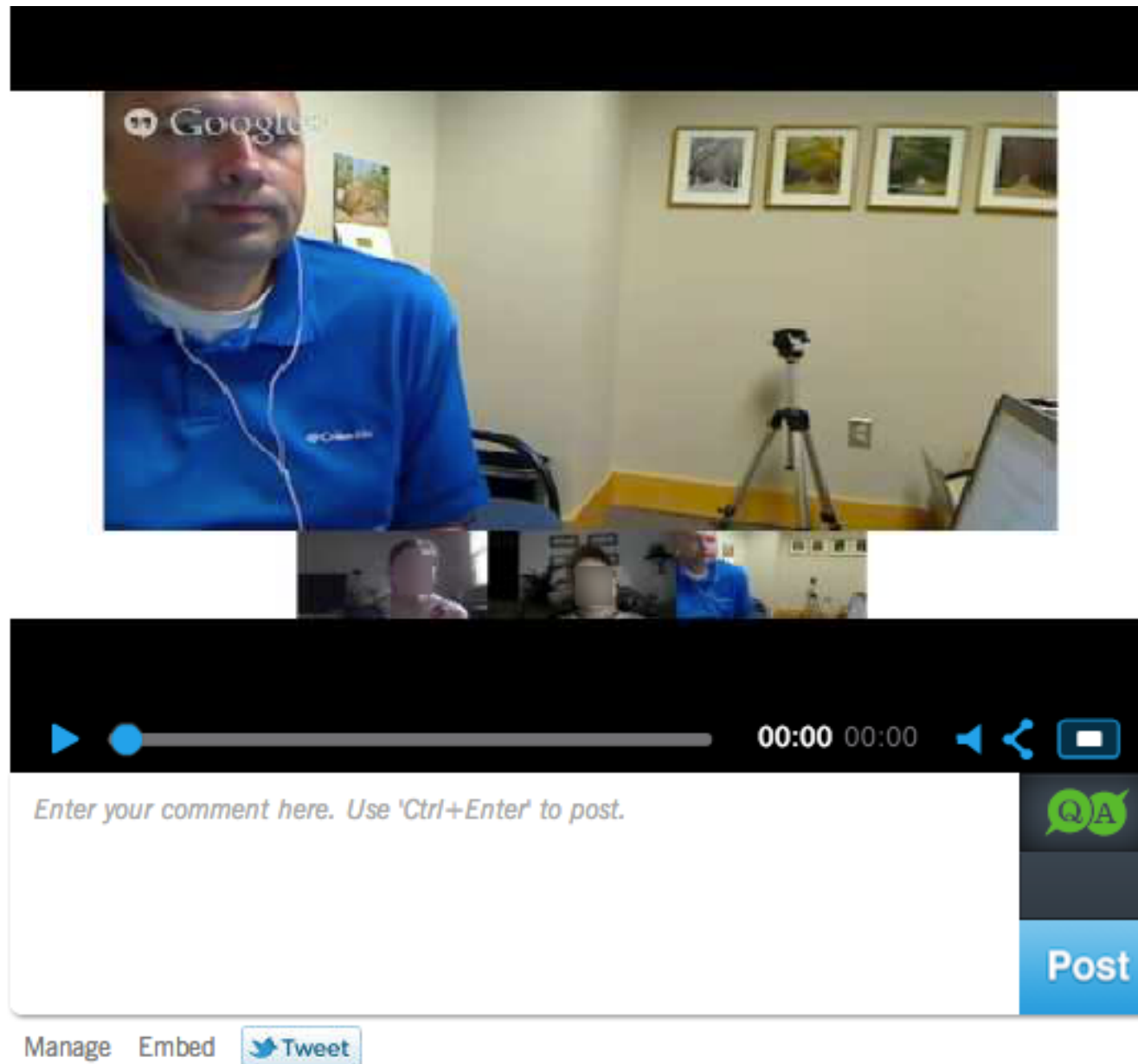| Google Hangout on Air | Real-time web conference | Share video with YouTube |
PollEverywhere	Audience response system	Polls used to encourage discussion
Vialogues	Asynchronous video discussion	Interact with the time-challenged
WordPress	Students reflect on learning	Shared publicly to encourage quality/ interaction

13

Hangouts on Air

Using PollEverywhere in Hangouts

Vialogues

bPortfolio using WordPress.com

Search ... **Go**

Recent Posts

▸ Module 10: The Horizon Report and the Future of Technology in the Classroom

▸ Module 9: Video in the Classroom

▸ Teachspark Lesson 3

▸ Teachspark Lesson 2

▸ Teachspark Lesson 1

Archives

▸ June 2013 (2)
▸ May 2013 (18)
▸ April 2013 (9)
▸ March 2013 (2)
▸ February 2013 (7)
▸ January 2013 (3)
▸ December 2012 (5)
▸ November 2012 (5)
▸ October 2012 (10)
▸ September 2012 (5)

Module 5: Harnessing the Creativity of Kindergarten

🕔 MAY 4, 2013   👤 ▮▮▮▮▮   📁 P2, P4   💬 3 COMMENTS

Clear

This weeks' readings approached the concepts of creativity and "creating" in the education process. Resnick's (2007) article inspired me to recall my own experiences in kindergarten and how impactful a creative approach was on my learning. It is clear that creating real problems for students to solve through trial and error, collaboration and reflection allows for critical thinking and problem-solving skills to evolve as a natural side effect of playing in a creative way. It is clear from the articles, videos, and reading discussion that we seem to be caught in an awkward place in education right now where our theories point towards a more creative approach, but our policies require stringent assessments and lack of supporting technologies. I want to try to find a way to incorporate the creative approach into my own teaching this year and in the future. I believe that I can use the creative approach and still meet or succeed the same expectations as the assessment-focused classrooms. I know that this would certainly be the harder road to follow in our current climate, but I do belive in the course of a few years I could hope to develop a teaching practice that encompasses Resnick's "spiraling cycle of Imagine, Create, Play, Share, Reflect, and back to Imagine" (2007, p. 1). I know that my most intense learning memories resonate with the same stages that Resnick describes and I believe that those stages are certainly viable for the education of students today.   Calder and Taylor's (2010) article gives great example of one way to do this is a classroom that engages students in a range effective learning strategies using the program Scratch. Even my short exploration of creating a project on Scratch awoke a creativity in me that I have

Practical Inquiry Model

Deliberation (Applicability)

Perception (Awareness)

Conception (Ideas)

Action (Practice)

EXPLORATION

Find & Share Resources

Assigned readings

INTEGRATION

Hangout Participation

Vialogues Participation

EXPERIENCE

Instructor Prompt in Bb

TRIGGERING EVENT

WordPress Reflection

RESOLUTION
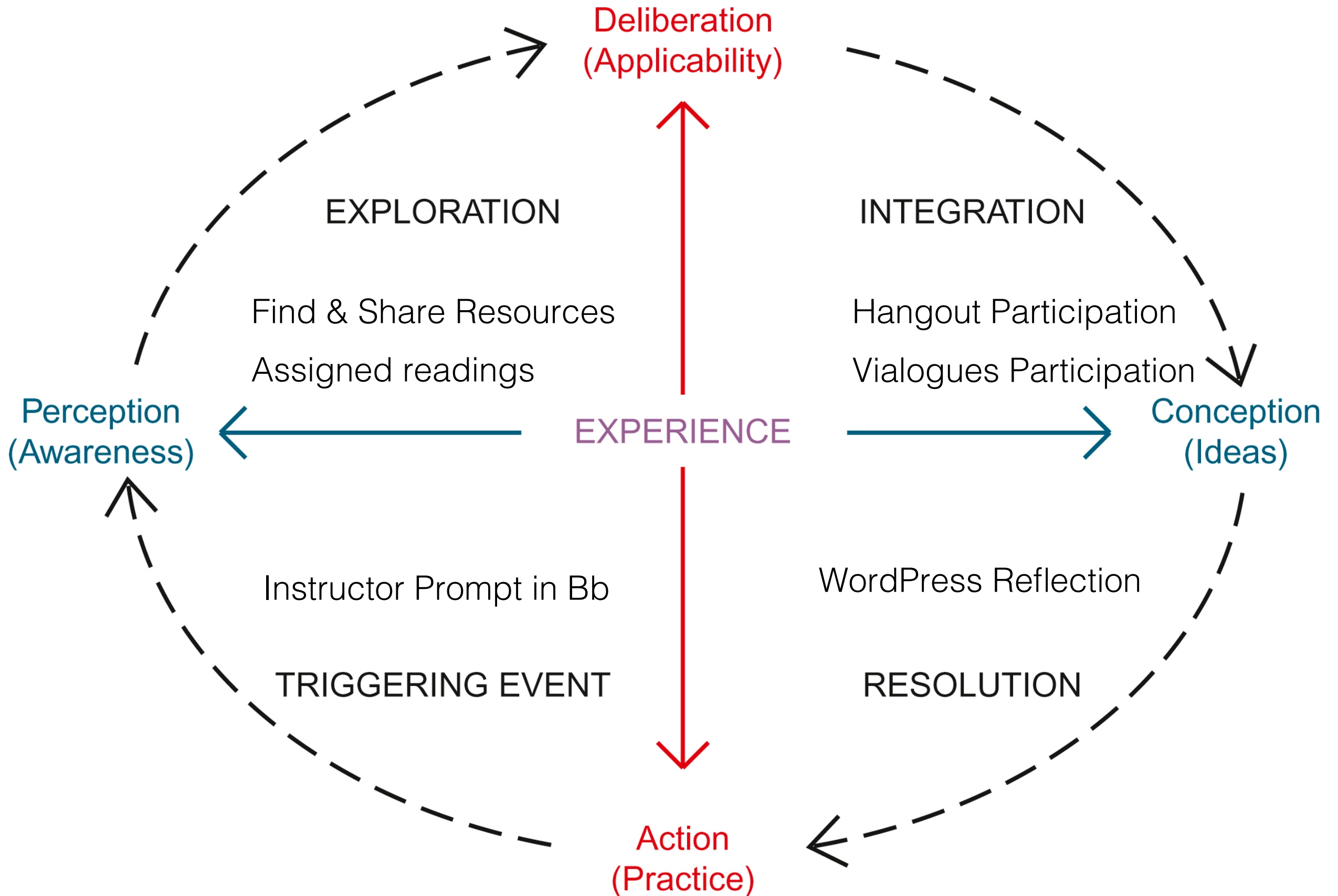
Semantic Analysis

- A form of text analytics was applied to the student posts from Hangouts, Vialogues, and Blogs
- All text was compiled and inserted into an Excel file
- The Semantria (https://semantria.com) program was used to apply semantic linguistic algorithms
- All text was analyzed for two components:
  - general FACETS which represent meta-themes of the students' writing
  - Community of Inquiry specific CATEGORIES representing the degree that students wrote about **teaching**, **social**, and **cognitive** aspects

semantria

Results

Research Question 1:
What did the students talk and write about?

- Semantria Facet Analysis

- Analyzed each student's blog, Hangout, and Vialogues separately

- Students, learning, technology, and schools were the most common Facets

- The number of Facets in the blogs far exceeded Hangouts and Vialogues (see next question)

Word Cloud – Hangout Facets

Word Cloud – Vialogues Facets
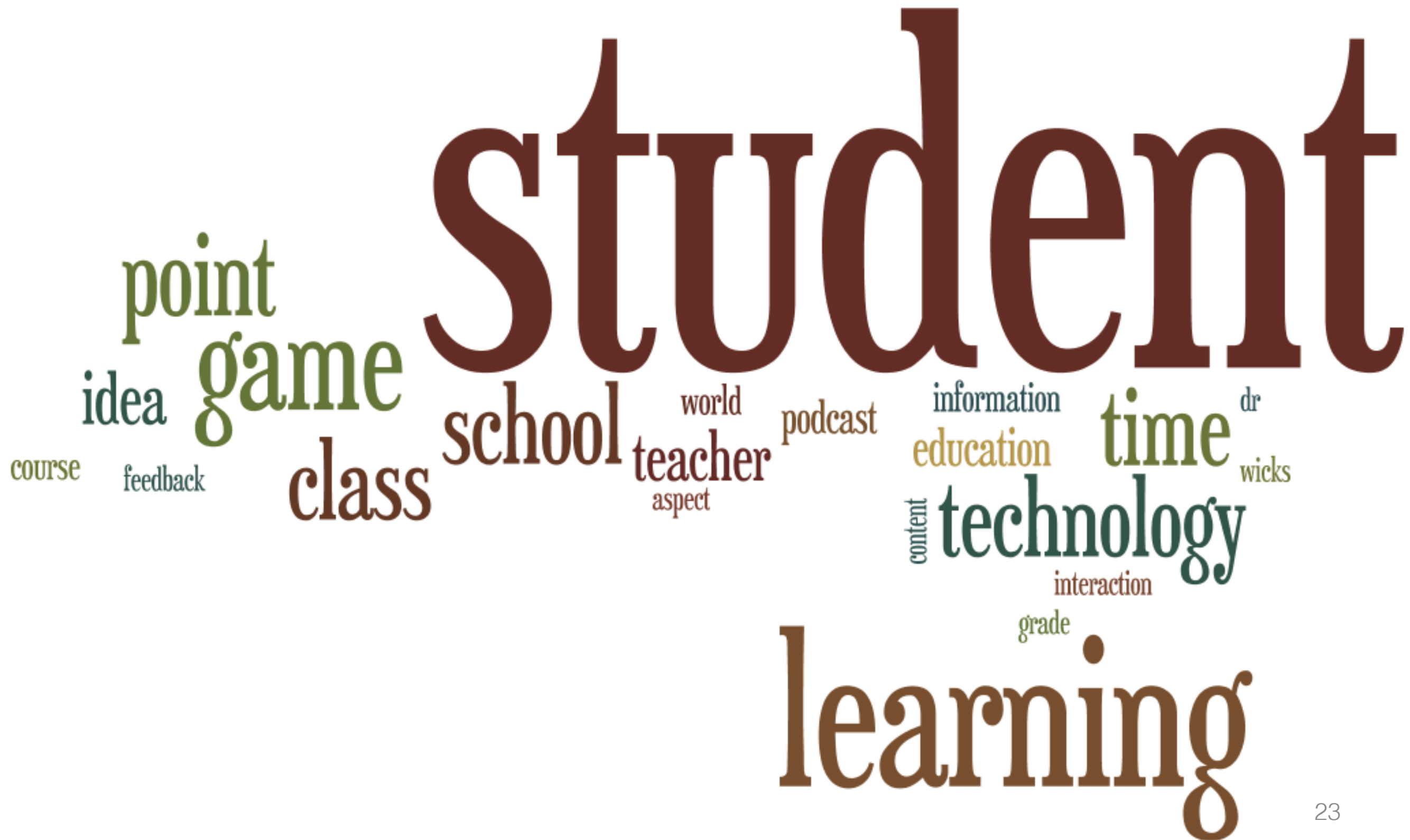
Word Cloud – Blog Facets

Research Question 2:
Do the number of themes in students' writing vary across Hangouts, Vialogues, and Blogs?

- Generate semantic Facets for the three text sources
- Count the number of unique Facets generated
- One-way ANOVA to compare means of themes
- Tukey post-hoc tests

Results

Descriptives

Semantic Facets

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Hangout	12	29.3333	20.30823	5.86248	16.4301	42.2366
Blog	13	103.3077	59.25001	16.43300	67.5033	139.1121
Vialogues	13	35.3077	23.97702	6.65003	20.8185	49.7969
Total	38	56.6842	51.13263	8.29481	39.8773	73.4911

ANOVA

Semantic Facets

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	43176.005	2	21588.003	14.107	.000
Within Groups	53562.205	35	1530.349		
Total	96738.211	37			

Differences noted in post-hoc tests
- Blog Facets > Hangout Facets (p = .001)
- Blog Facets > Vialogues Facets (p = .001)

Research Question 3:
How do the student text data reflect aspects of the Community of Inquiry?

- Set up special queries in Semantria
- Queries included terms related to Community of Inquiry
  - Teaching
  - Social
  - Cognitive
- Means compared via one-way ANOVA
  - No significant differences in CoI related themes found across Hangouts, Vialogues, and Blogs

CoI Teaching Example

"I got some really good feedback on how to improve my WebQuest and just this whole way that you've laid this out that we communicate with each other is brought my learning that much further down the road."

From a Hangouts transcript

CoI Social Example

"Even though I haven't been able to actively participate in the hangouts because I work nights, I have really enjoyed this option as an alternative to asynchronous discussion. The asynchronous discussions seem so much more disingenuous to me and, conversely, I actually appreciate being able to experience others' thought processes."

From a Vialogues entry

CoI Cognitive Example

"At this time my understanding of design process involves the planning with story boarding, which would translate into composing activities for performance ensembles. Much more thought needs to be made in this area."

From a blog entry

Research Question 4:
What relationships occur between variables?

- Variables included
  - Number of Hangouts participated in by each student
  - Community of Inquiry (CoI) survey scores
    - Teaching
    - Social
    - Cognitive
  - General semantic Facets in Hangouts, Vialogues, and Blogs
  - CoI related Themes in Hangouts, Vialogues, and Blogs
- Spearman correlations due to small sample sizes

Correlations

		Col Teaching	Col Social	Col Cognitive	Number of Hangouts	Hangout Facets	Blog Facets	Vialogue Facets	Col Themes in Blog	Col Themes in Hangouts
Col Social	Correlation Coefficient	.972**								
	Sig. (2-tailed)	.000								
	N	13								
Col Cognitive	Correlation Coefficient	.966**	.966**							
	Sig. (2-tailed)	.000	.000							
	N	13	13							
Number of Hangouts	Correlation Coefficient	.422	.474							
	Sig. (2-tailed)	.151	.102							
	N	13	13							
Hangout Facets	Correlation Coefficient	.405	.479	.365	.811**					
	Sig. (2-tailed)	.191	.115	.244	.001					
	N	12	12	12	12					
Blog Facets	Correlation Coefficient	.307	.219	.291	-.443					
	Sig. (2-tailed)	.307	.473	.334	.129					
	N	13	13	13	13					
Vialogue Facets	Correlation Coefficient	.122	.094	.128	-.522	-.607*	.798**			
	Sig. (2-tailed)	.692	.760	.678	.067	.036	.001			
	N	13	13	13	13	12	13			
Col Themes Blog	Correlation Coefficient	.277	.203	.236	-.203	-.364	.562*			
	Sig. (2-tailed)	.360	.505	.437	.505	.244	.046			
	N	13	13	13	13	12	13			
Col Themes Hangouts	Correlation Coefficient	.256	.352	.244	.893**	.676*	-.500	-.568*	-.142	
	Sig. (2-tailed)	.399	.238	.421	.000	.016	.082	.043	.644	
	N	13	13	13	13	12	13	13	13	
Col Themes Vialogues	Correlation Coefficient	.541	.423	.492	.066	-.134	.800**	.553	.440	-.067
	Sig. (2-tailed)	.056	.149	.088	.830	.678	.001	.050	.132	.829
	N	13	13	13	13	12	13	13	13	13

Discussion

- Students talked (Hangouts) and wrote (Vialogues, WordPress) about the most important themes from the course content.
- The number of meta-themes shared in blog posts (WordPress) was significantly higher than the number shared during synchronous (Hangouts) and asynchronous (Vialogues) video indicating that:
  - Students expanded on themes discussed in synchronous and asynchronous video conferences during personal reflection.
  - Blog reflections did not have a time limit
- Synchronous and asynchronous video serve as scaffolding tools for blogging, promoting reflection.
- Content-focused video and text transcripts plus small sample size may have limited occurrences of CoI elements within the dialogue and writing.

Benefits/Challenges of Synchronous and Asynchronous Video

Benefits

- Reduction of procedural questions by email
- "Absent" students like interacting with video conference recording
- Students appreciate exposure to multiple technologies
- Video promotes "getting to know each other better"

Challenges

- Finding meeting time
- Group size
- Synchronous video requires planning/prompts
- Too many tools for some students/professors
- Camera shy

Allen & Seaman, 2013, p. 22
Caladine, Andrews, Tynan, Smyth, & Vale, 2010, pp. 253-254

Student Evaluation

- Google Hangout allowed for personal connection Vialogues was a convenient and useful method to interact with students if you were not able to attend the Hangout, still felt like I got to know classmates better that participated in the Vialogues even if they weren't getting to know me blog buddies: helped create a network of other educators who passed on helpful resources.

Student Evaluation

- It was hard to focus on one component of the class because it seemed like there were too many layers. Between the Google hangout or Vialogues, readings, blogging, responding to blogging, and skills test I felt I couldn't go in depth with any of them.

Limitations

- Self-reported
- Single instructor
- Single course

References

Allen, E. I., & Seaman, J. (2013). Changing course: Ten years of tracking online education in the United States. Retrieve from http://sloanconsortium.org/publications/survey/changing_course_2012

Borup, J., West, R. E., & Graham, C. R. (2012). Improving social presence through asynchronous video. Internet and Higher Education, 15, 195-203.

Caladine, R., Andrews, T., Tynan, B., Smyth, R., & Vale, D. (2010). New communications options: A renaissance in videoconference use. In G. Veletsianos (Ed.), Emerging technologies in distance education (249-266). Edmonton, AB: AU Press.

Carr, S. (2000). As distance education comes of age, the challenge is keeping the students. Chronicle of Higher Education, 46(23).

De Wever, B., Schellens, T., Valcke, M., & Van Keer, H. (2006). Content analysis schemes to analyze transcript of online asynchronous discussion groups: A review. Computers & Education, 46, 6-28. doi:10.1016/j.compedu.2005.04.005

Garrison, D. R. (2011). E-learning in the 21st century: A framework for research and practice (2nd ed.). New York, NY: Routledge.

Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, *2*(2-3), 87–105.

Meyer, K. (2004). Evaluating online discussions: Four different frames of analysis. Journal of Asynchronous Learning Networks, 8(2), 101–114.

Song, L., Singleton, E. S., Hill, J. R., & Koh., M. H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. Internet and Higher Education, 7, 59-70. doi:10.1016/j.iheduc.2003.11.003

Swan, K., Richardson, J. C., Ice, P., Garrison, D. R., Cleveland-Innes, M., & Arbaugh, J. B. (2008). Validating a measurement tool of presence in online communities of inquiry. *e-Mentor*, *24*(2), 1–12.

Zhao, Y., Lei, J., Yan, B., Lai, C., & Tan, H. S. (2005). Analysis of research on the effectiveness of distance education. Teachers College Record, 107(8), 1836-1884.

Study Contact

David Wicks

- dwicks@spu.edu

- @drdavidwicks on Twitter

- http://google.com/+DavidWicks1 on G+