

Mobile Learning and the Online Community of Inquiry

M. Cleveland-Innes
M. Ally



SSHRC funded research to examine:

- extent of mobile device use to support learning in sample of online graduate students
- relationship (if any) of mobile device use on emergence of four types of online presence for learning:
 - social,
 - cognitive,
 - teaching, and
 - emotional presence



Context

Number of mobile subscriptions topped the seven billion mark in 2013; now projected to be higher than the human population.

Faille, M. & Morrison, K. (2013). Rise of the cellphone. National Post, April 9, 2013.

Mobile communication devices are used by students in higher education and particularly graduate students studying online.

Kim, S.H., Mims, C., and Holmes, K.P. (2006). An introduction to current trends and benefits of mobile wireless technology use in higher education. AACE Journal, 14(1): 77-100.

This research one step toward understanding how to design learning materials for delivery on mobile communication devices and consider key practice implications.

Ally, M. (Ed.). (2009). Mobile learning: Transforming the delivery of education and training. Athabasca University Press.

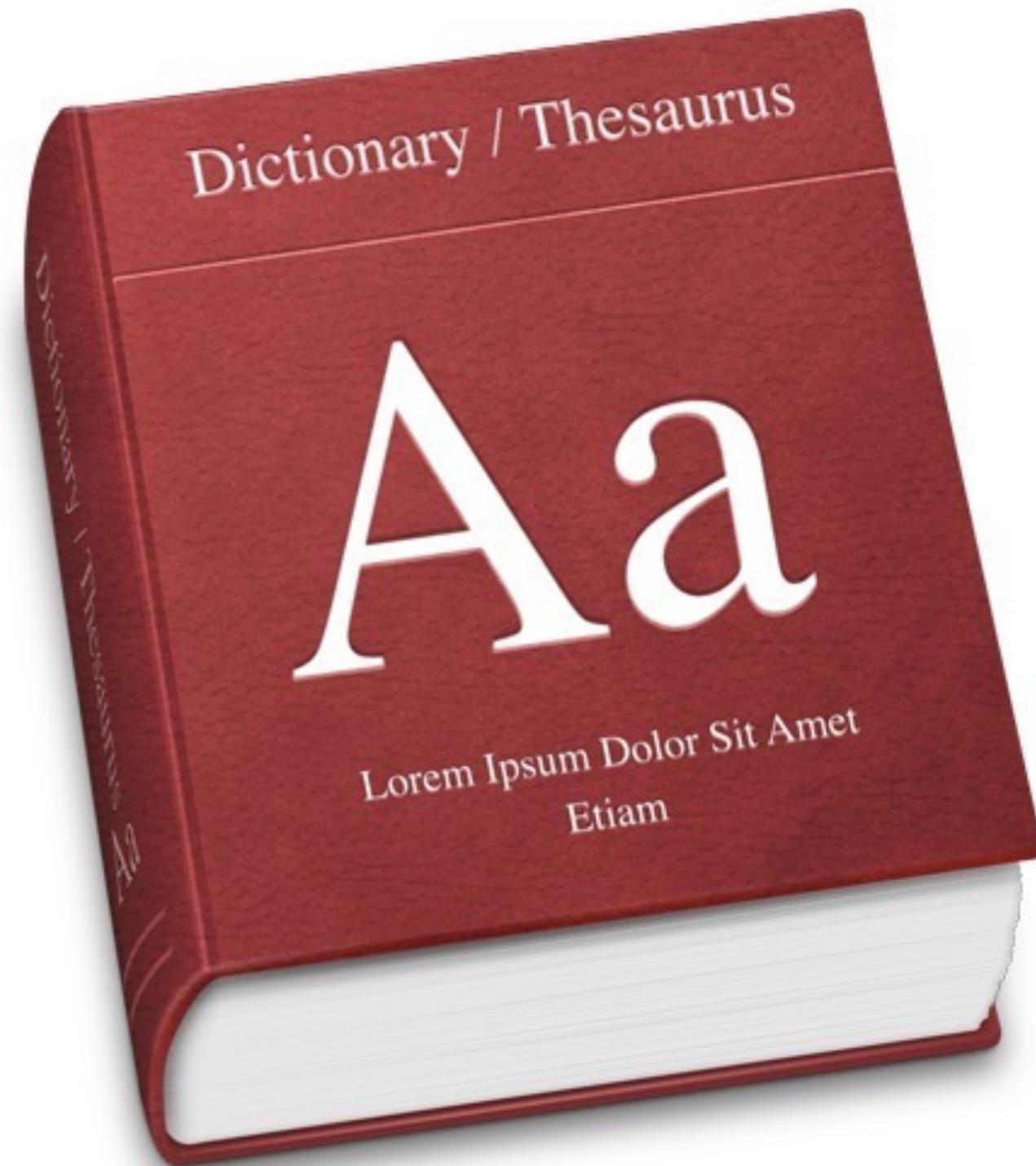


“Nomadicity”

The tendency of a person, or group of people, to move with relative frequency.

Also means that learner can easily access electronic services, other learners/teachers/coaches/mentors, and various learning materials with their mobile devices while they are on the move.

Kleinrock, L. (1996) Nomadicity: Anytime, Anywhere in a Disconnected World. Mobile Networks and Applications, 1, 4, 351–357.



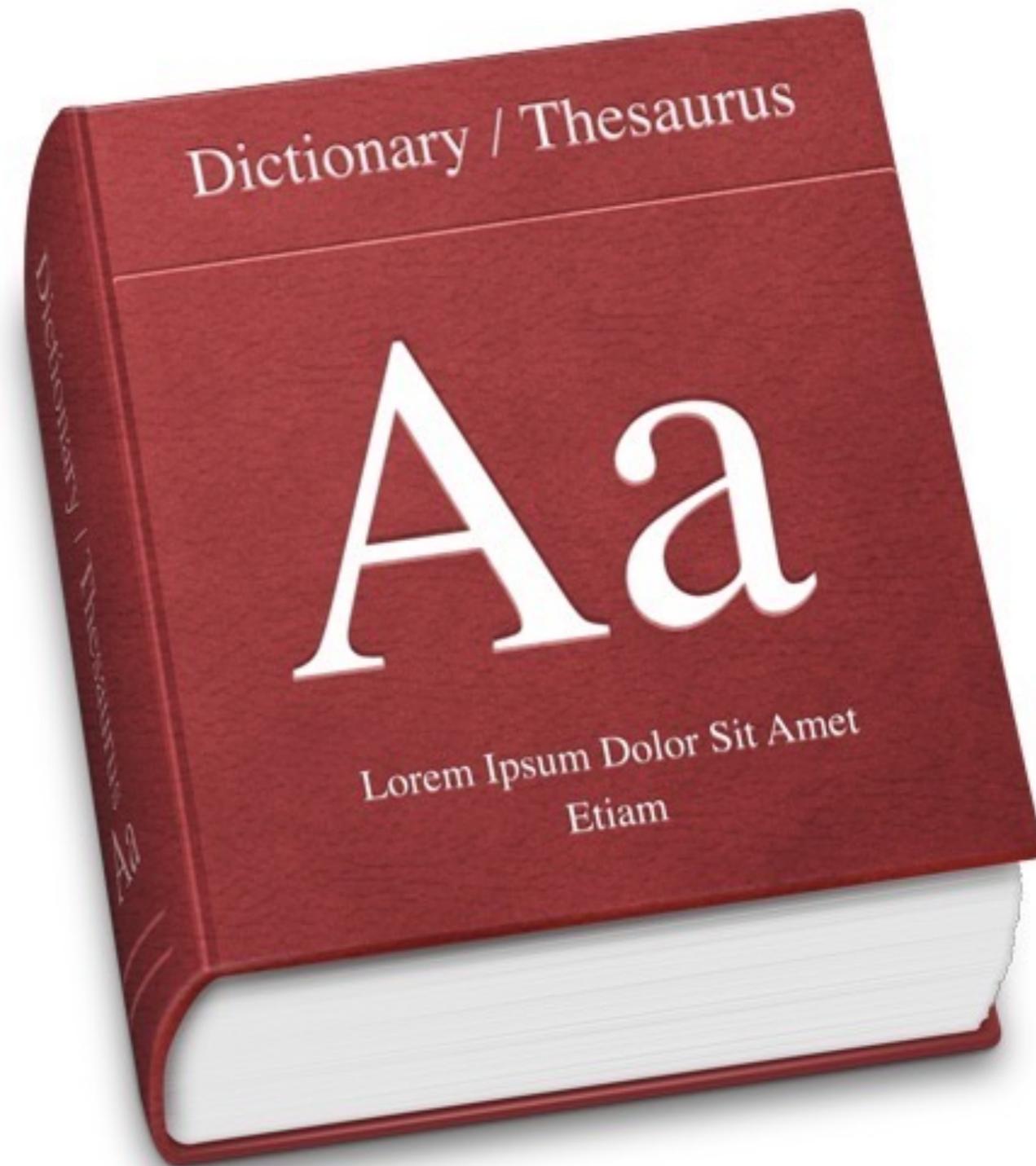
“Nomadic Learning”

A form of learning in which a learner has continuity of service across different sessions, and possibly, different locations.

For example: a learner may have a different teacher every year; different colleagues every course, and a learner may change institutions from time to time.

Learning using mobile devices is now added to this definition – location is no longer fixed.

Sarrab, M., Elgamel, L., & Aldabbas, H. (2012). Mobile learning (m-learning) and educational environments. *International journal of distributed and parallel systems*, 3(4), 31-38.

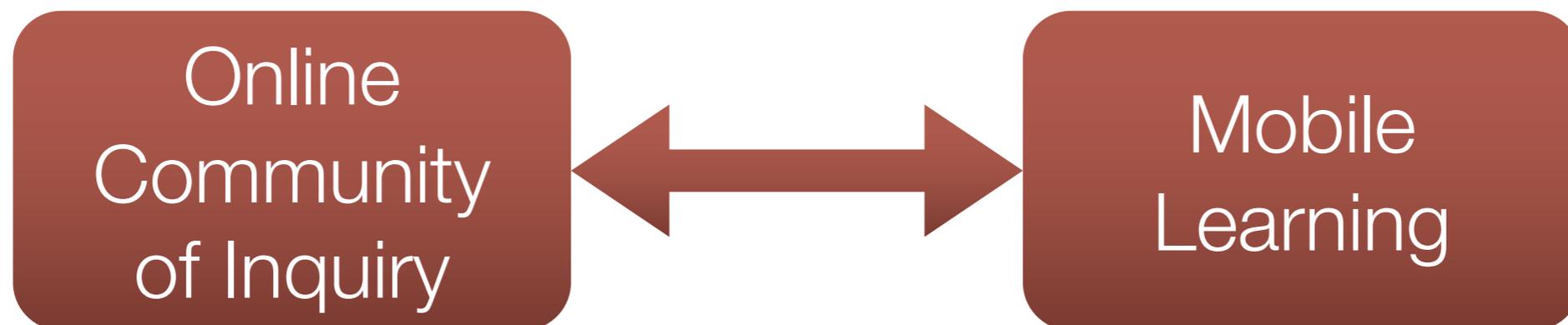


How does what we know of Col apply to mobile learning?

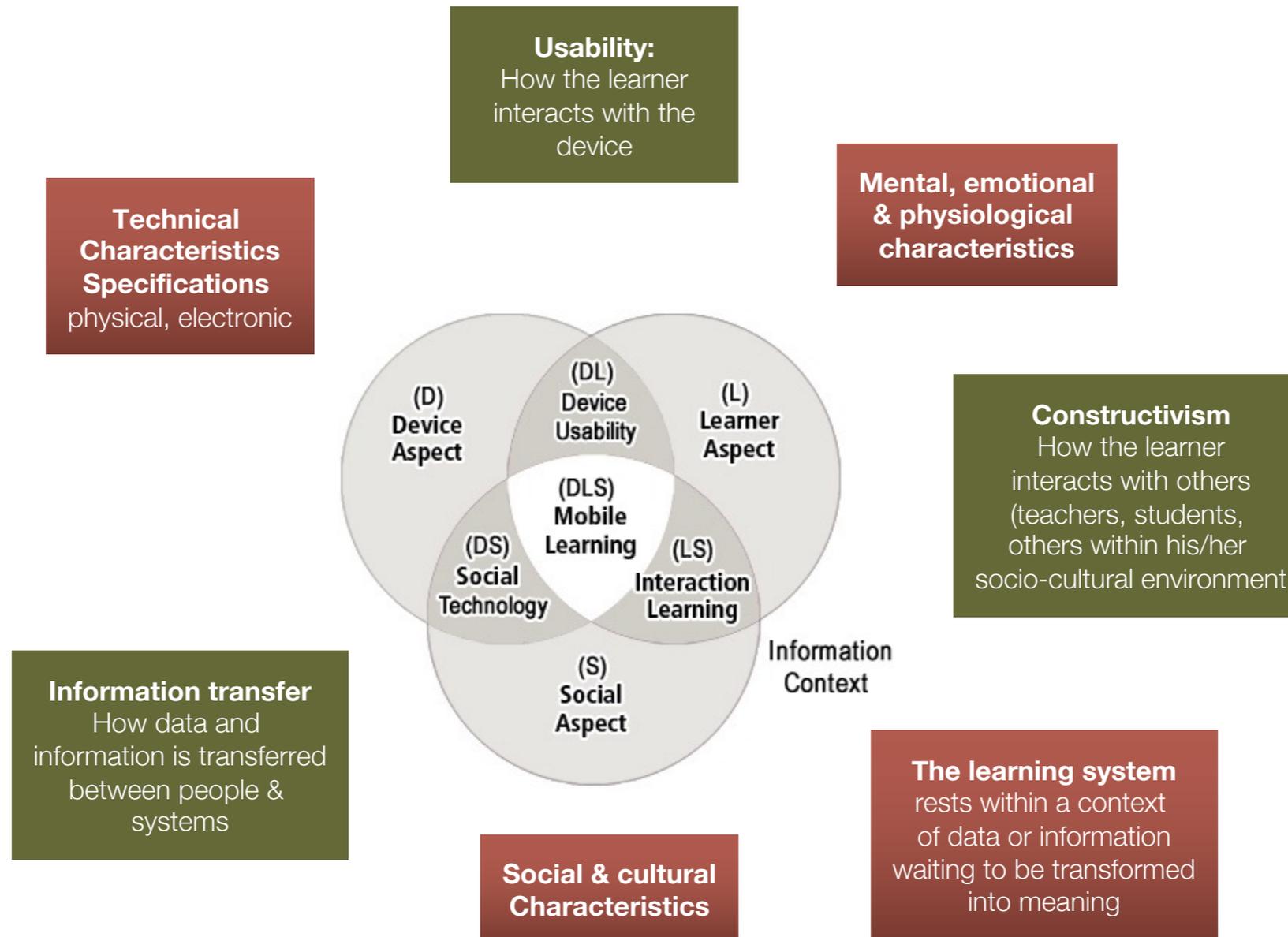
Mobile technology allows unprecedented permutations and concatenation of innovations in communication at the levels of place and space, individual, group and mass, and creative new services offered from a range of entities from amateur creators to gigantic corporations,...

In contrast to computer and internet technology, social science research on mobile communication technology has not caught on quickly among the scholarly community.

Katz, J. E. (2006). Mobile communication and the transformation of daily life: The next phase of research on mobiles. Knowledge, Technology & Policy, 19(1), 62-71.



The FRAME Model



Koole, M. L. (2009). A model for framing mobile learning. *Mobile learning: Transforming the delivery of education and training*, 1(2), 25-47.

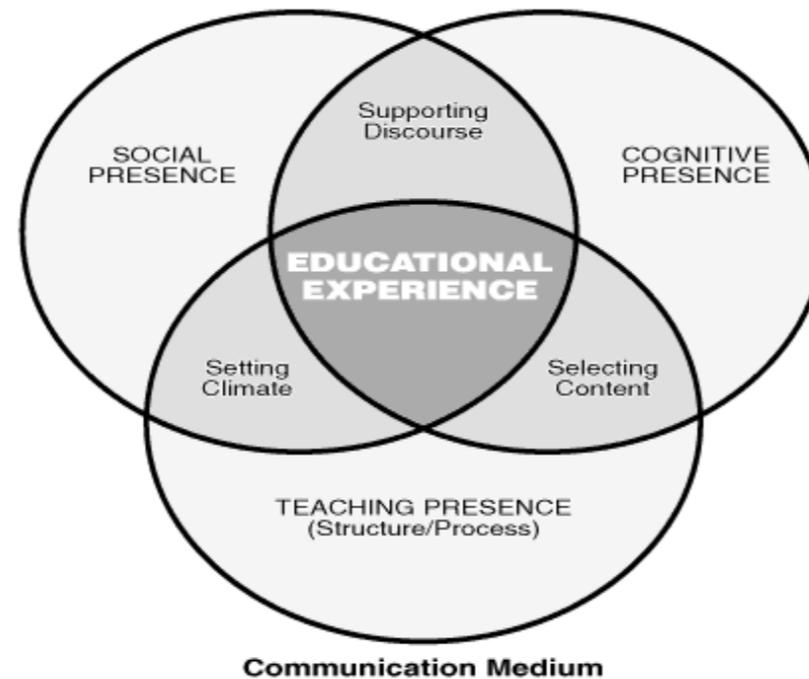
Emotional Presence

Instructors can model emotional response (Brookfield, 2006), explain its role in the instructor's own learning (Kort, Reilly & Picard, 2001), teach how to bring emotion to consciousness and make use of the emotional state in a learning situation (Campbell & Cleveland-Innes, 2005).

Social Presence

The ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities

Community of Inquiry



Cognitive Presence

The extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry.

Teaching Presence

The design, facilitation and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes

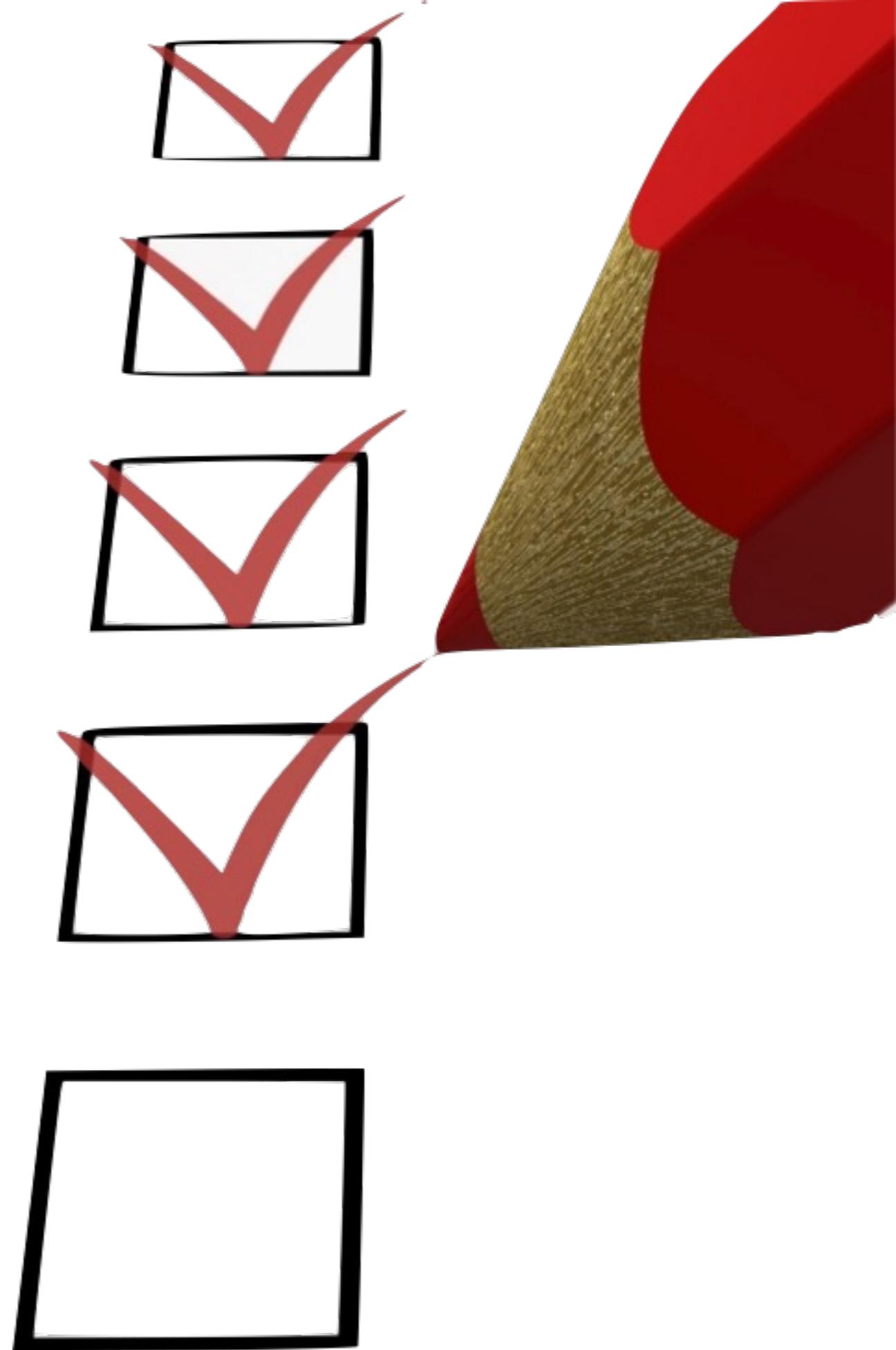
Methods

Employed a quantitative survey design, using a validated instrument measuring the four presences of a community of inquiry, controlling for the use of mobile devices, the use of mobile devices for learning, and the demographic variables age and gender. The unit of analysis is was the individual student and the time-frame was a single snap-shot assessment.



Methods

- Initial statistical analysis using SPSS version 20
 - Provided frequency and descriptive data to allow for data overview and cleaning.
- Principal components analysis
 - Performed on survey responses received from 540 students.
 - Items not loading according to theoretical premises were deleted from the data set before further analysis was completed.
- T-tests for differences between means and regression analysis of the dependent variables of all four presences
 - Employed for independent variables of mobile device use, age and gender.



Users

	Uses mobile device	Use mobile device for learning
User	309 (76.1%)	206 (50.7%)
Non-user	96 (23.6%)	95 (23.4%)
Not applicable		96 (23.6%)
Missing	1 (.2%)	9 (2.2%)
Total	406 (100%)	406 (100%)

Principle Components Analysis

	1	2	3	4
The instructor helped to focus discussion on relevant issues in a way that helped me to learn.	.752			
Instructor actions reinforced the development of a sense of community among course participants.	.749			
The instructor helped to keep course participants engaged and participating in productive dialogue	.747			
The instructor helped keep the course participants on task in a way that helped me to learn.	.746			
The instructor clearly communicated important course topics.	.741			
The instructor provided feedback in a timely fashion	.728			
The instructor helped to focus discussion on relevant issues in a way that helped me to learn.	.718			
The instructor clearly communicated important course goals.	.699			
The instructor provided feedback that helped me understand my strengths & weaknesses relative to the course's goals and objectives	.679			
The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.	.677			
The instructor provided clear instructions on how to participate in course learning activities.	.673			
The instructor clearly communicated important due dates/time frames for learning activities.	.587			
The instructor encouraged course participants to explore new concepts in this course.	.581			
The instructor helped to keep course participants engaged and participating in productive dialogue	.747			

Principle Components Analysis

	1	2	3	4
Learning activities helped me construct explanations/solutions.		.629		
I felt motivated to explore content related questions.		.606		
I have developed solutions to course problems that can be applied in practice.		.569		
I can describe ways to test and apply the knowledge created in this course.		.547		
I can apply the knowledge created in this course to my work or other non-class related activities.		.541		
Combining new information helped me answer questions raised in course activities		.629		
Course activities piqued my curiosity.		.606		
Problems posed increased my interest in course issues		.569		
Reflection on course content and discussions helped me understand fundamental concepts in this class.		.547		
Brainstorming and finding relevant information helped me resolve content related questions.		.541		
I utilized a variety of information sources to explore problems posed in this course.		.483		

Principle Components Analysis

	1	2	3	4
I felt comfortable interacting with other course participants.			.794	
I felt comfortable conversing through the online medium.			.775	
I felt comfortable participating in the course discussions.			.766	
I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.			.728	
Online discussions help me to develop a sense of collaboration.			.535	
I felt that my point of view was acknowledged by other course participants.			.531	
Getting to know other course participants gave me a sense of belonging in the course.			.477	
I was able to form distinct impressions of some course participants.			.396	

Principle Components Analysis

	1	2	3	4
Emotion was expressed when connecting with other students.				.776
I found myself responding emotionally about ideas or learning activities in this course.				.626
Expressing emotion in relation to expressing ideas was acceptable in this course.				.594
The instructor demonstrated emotion in online presentations and/or discussions.				.559

Social Presence

Mobile device use for learning has a positive and significant effect on Social Presence. This effect remains when controlling for age and gender.



Teaching Presence

- Use of mobile device has an impact on Teaching Presence when controlling for gender and age. However gender has no impact on use of mobile device and TP.



Cognitive Presence

Mobile device for learning has a positive and significant effect on Cognitive Presence. This effect remains when controlling for age and gender.

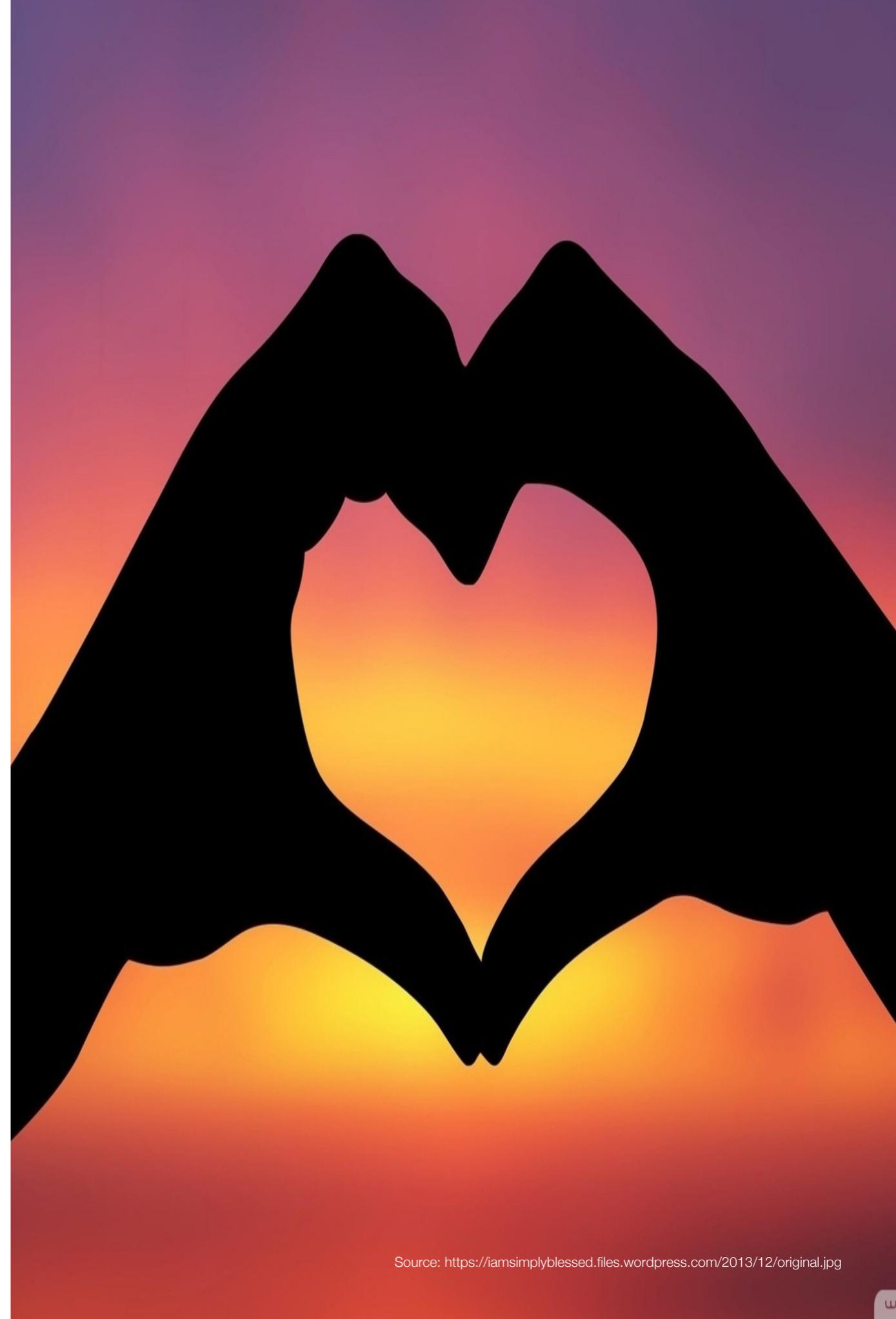


Emotional Presence

Gender is a significant predictor of Emotional Presence scores, but age and mobile device use is not.

EP scores for women higher than men, and the effect in regression analysis is moderate but statistically significant.

Mobile device use has no impact on EP scores.



Conclusions

Results from the other three presences show a change in scores

- based on the use of mobile devices for learning,
- but not for general mobile device use.

Evidence from this study of presence and use of mobile devices confirms:

- the impact of mobile device use for learning on social and cognitive presence
- the existence of emotional presence as a separate element in the online and mobile experience
- a significant gender effect on emotional presence.