Using Cogenerative Mediation to Assess an Aspect of Classroom Culture

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A culture of learning is based on what people value as preferable learning activities and methods [1].

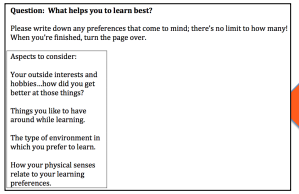
- Cogenerative Mediation Process for Learning Environments (CMPLE) helps students and teachers reflect upon their individual learning preferences [2].
  - Based on awareness and understanding, participants build consensus about class learning preferences.
  - Next, participants take responsibility for changing their shared environment to be more representative of their preferences.

Activity Theory-Based Analysis

- Focuses on "what people actually do, the objects that motivate their activity, the tools they use, the community of which they are part, the rules that pattern their actions, and the division of labor they take in activity [3]".
- Participants, their objects, and the different resources form an "activity system" (see triangles below).

Assessing Classroom Culture Based on Class Preferences

Students & teachers reflected on their own preferences in week 4 and again in week 12…


Question: What helps you to learn best?

Please write down any preferences that come to mind; there's no limit to how many! When you're finished, turn the page over.

Aspects to consider:

Your outside interests and hobbies...how did you get better at those things?

Things you like to have around while learning.

The type of environment in which you prefer to learn.

How your physical senses relate to your learning preferences.

…then came to consensus about the collective preferences of the class each time.

Our assessment compares the class preferences in week 4 to the preferences in week 12.

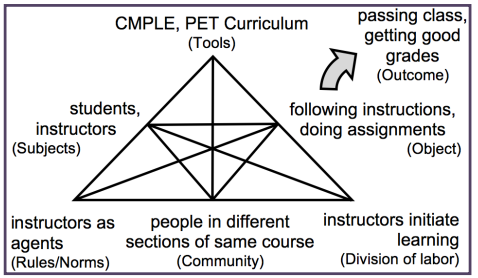
Participants: 30 pre-service elem. teachers, 2 coteachers (doctoral students) in a Science Content & Methods course

Data: Class Preferences, Week 4	
Incentives, Interests	Practice, Lots of time (to figure things out)
Group work, Hands-on activities, Working with friends	Comfort, Cold room, Food, Music
Examples, Clear instruction, Short lecture, Study guide, Mnemonics	

Emergent Themes from Week 4 Data

- Teacher-initiated learning (teacher-as-agency)
- Reliance on instructors to initiate learning, provide incentives, produce study guides
- Participants want to be comfortable, but aren't preferencing to *do* anything to make that happen

Interpretation: Activity System, Week 4

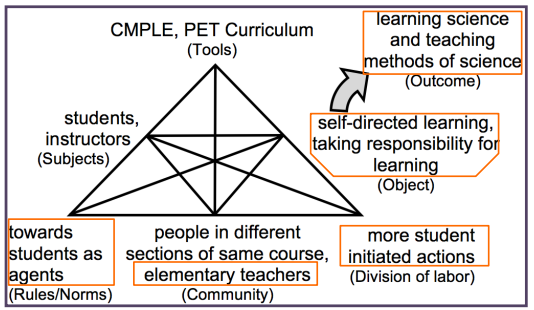


Data: Class Preferences, Week 12	
Opportunistic learning, Aha! Moments	Focused, Prior knowledge, Non-antagonistic environ.
Visual aides for concepts, Hands-on (activities)	Plenty of time to work, Shorter classes, Longer breaks
Examples / homework practice, Real world examples	Organized (personal environ.), Note-taking, (Having all) materials, (Personal) schedule
Clear instruction, Structure, Organized setting (in class)	Comfortable clothing, Quiet, No distractions

Emergent Themes from Week 12 Data

- Overall theme is one of shared agency
- Community expands to in-service teachers, due to teacher-like preferences (Having materials, visual aides, non-antagonistic environ., comfortable clothing)
- Preferences resemble effective practices for learning science content and teaching methods
- Instead of waiting to be offered incentives, participants prefer "opportunistic learning", in which everyone looks for "Aha!" moments

Interpretation: Activity System, Week 12



[outlines denote changes from week 4]

Conclusions

- Adapting to meet the preferences of a cogenerative culture of learning affects that culture in multiple and complex ways.
- Most noticeable were the changes in the object (motive) of activity, and its outcome.
- Our methods can be used to assess when and in what ways preferences about teaching and learning science are shaped by the dynamic experiences of a classroom engaged in a cogenerative mediation.

References:
[1] C. Arden-Close, *Journal of Science Education and Technology*, **8**, 323-332 (1999).
[2] N. Samuels and E. Brewe, *COERC Proceedings*, 2011, pp. 207-215: http://fiuperg.pbworks.com/ w/page/14043147/Published-Papers
[3] W. M. Roth and K. Tobin, et al., *Mind, Culture, and Activity*, **11**, 48-69 (2004).

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