Identifying and Analyzing Actions of Effective Group Work

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Research Question

How do groups engage, and what do teachers value as effective group behaviors?

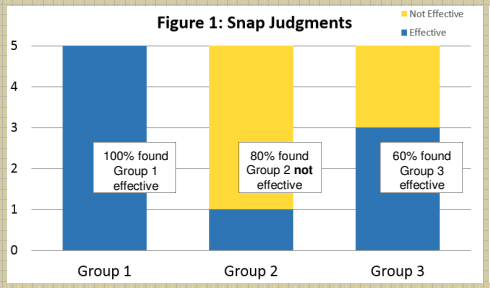
Methods

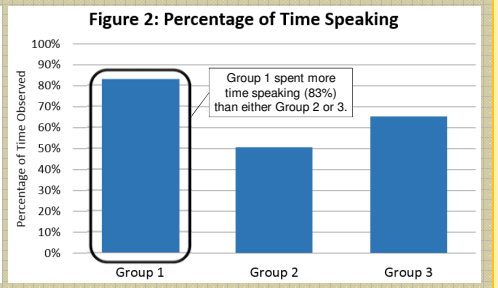
1. Collected three 10-minute videos of groups within the same PET-HS class.
2. Teacher-researchers independently rated groups as *effective* or *ineffective.*
3. Transcribed verbal utterances, their characteristics, and physical behaviors.
4. Independently coded, then reconciled codes to develop 5 generative codes.
5. Re-coded videos, identified trends, & compared to snap judgments.
6. Calculated percentage of time: speaking, equity of voice, & working together.

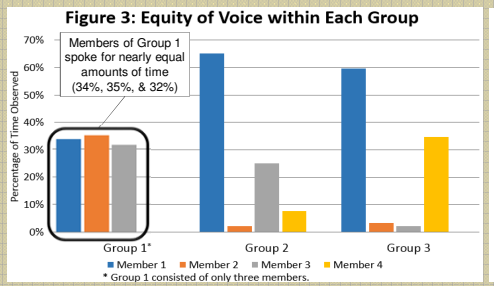
Generative Codes

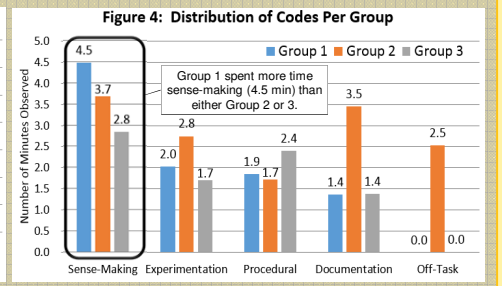
Code	Example
Experimentation	· Stands up, grabs the rubbed nail, & holds the head of the rubbed nail to the head of the floating nail. · Brings head of the nail close to the North end of the compass.
Sense Making	· *"Remember where we did the other experiment? When we did the unrubbed nail it still, like, did something because one of them was magnetized."* · Student 3: *"Okay, so is that more like a magnetized nail or the unmagnetized nail?"* Student 2: *"Wouldn't it be unmagnetized?"* Student 1: *"Yeah, when we put it, it still did something, and this didn't do anything."*
Procedural	· *"So, we already did step six?"* (reading instructions) *"Set the rubbed nail aside for a moment. Imagine that you…"* · (reading instructions) *"In the next steps, you will use a test tube filled with iron filings to help you build your model…"*
Documentation	· Sits down and writes in notebook. · Observed experiment, and then continues to write in notebook.
Off-Task	· Looks over shoulder at a different group. · Continues flipping through pages in notebook.

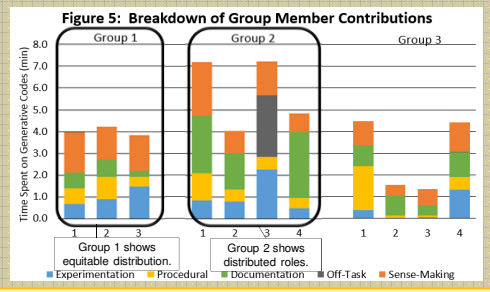
Data

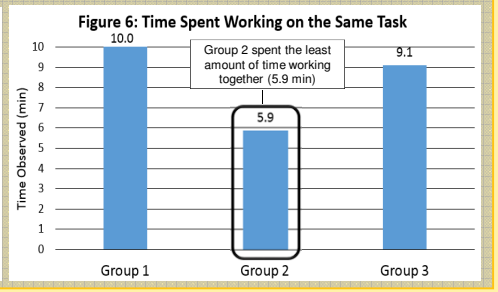












Findings

- Snap judgments of group effectiveness by teacher-researchers were varied (Fig 1).
- Group 1 spent more time speaking than either Group 2 or 3 (Fig 2).
- Students in Group 1 showed more equity of voice than either Group 2 or 3 (Fig 3).
- Group 1 spent more time engaged in sense-making (Fig 4). Each member of Group 1 also contributed equally to sense-making (Fig 5).
- Group 2 spent more time engaged in experimentation, documentation, & off-task behaviors (Fig 4). Most of these behaviors were performed by only 2 members of the group (Fig 5).
- Group 2 spent less time working together on the same task than either Group 1 or 3 (Fig 6).

Conclusions

- Teacher-researchers may place high value on Group 1 qualities: the time spent sense-making, high equity of voice, and time spent on the same task.
- Teacher-researchers may place low value on Group 2 qualities: off-task behaviors and non-equitable contributions. Teacher-researchers may value, above all else, group members to *work together*.

Limitations

- Off-task behavior may have negatively swayed snap judgments of Group 2
- Group 2 showed distributed roles, which also may be valuable in group work.

Next Steps

- Develop a methodology to assess group dynamics and interventions to promote valued behaviors

Acknowledgements

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