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Piloting Problem-based Learning (PBL) for Senior Military Leaders

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RESEARCH TRACK: Assessment and SOTL
Setting

• United States Army War College, Carlisle Barracks, PA
• Professional military education (PME)
• Accredited through Middle States to award master’s degrees in Strategic Studies
• Develops strategic leaders and skilled problem solvers in order to achieve national security objectives
Our Critique

• “Strategy is performance”
  – Strategy is not just a discipline
  – Strategy is something we do…in groups
  – It’s problem-solving amidst intractable problems

• Our curriculum
  – The dominant pedagogy is “Socratic dialogue”
  – The pinnacle learning outcomes are “Apply” or “Synthesize”
  – Yet, problem-solving requires students to “Create” or “Develop” or “Design” (from Dr. Angela Karrasch, Army Research Institute)
How Are We Doing?

• Today’s assessments of the curriculum
  – Student surveys
  – Course directors’ impressions

• Today’s assessments of our students
  – Course writing requirements
  – Course contributions to group learning
  – Comprehensive oral examination
  – Forced distribution of grades

• Assessments of students and curriculum must be linked
We don’t have a science-driven understanding of what this looks like?

Higher and Lower Strategic Performance

Application of curricular topics to problem-solving (policymaking, strategy, leadership, military planning, defense management)

Individual attributes: e.g., open-mindedness, self-awareness, humility

Group attributes: e.g., collegiality, inclusiveness, high-level debate

Relational Learning Dynamics

Individual: ok
Group: -

Learning Transfer

Individual: ok
Group: -

Individual: ?
Group: ?
Our Approach

• Observe students in groups as they study a real-world problem and propose interventions
• Key outputs include a briefing and a portfolio of analyses
• Pre- and post-observations with a control group
• Conduct an ethnographic observation to identify individual and group dynamics
• Select expert, external stakeholders to observe and comment on the students’ work
What is Strategic PBL?

- Students must gather perspectives; i.e., conduct research
- Students must exercise causal literacy
  - Why are things the way they are?
  - Will my interventions work?
- Students must engage in the normative evaluation of ends or aims
- Students must create a plan to negotiate a competitive decision-making space
Rationale

• This exploratory pilot study will measure and observe learning, engagement, and attitudes of senior-level service college students. It will provide valuable data on what the process of student learning looks like, how student learning changes over time, and if students learn better due to both the intervention of the problem-solving exercise and the school’s core curriculum. It will also provide insight into the students’ sense of belonging within a seminar group.
Research Questions

1. How do executive-level students translate knowledge of strategy into performance?

2. How does engagement in PBL influence students’ sense of belonging in the seminar environment?*

3. How does the completion of the school’s core curriculum influence students’ performance in problem-solving exercises?

Methodology

• Test (n=16) and control (n=15) seminar groups
• Both test and control groups took the Sense of Belonging measure at the beginning and end of the 5-day Introduction to Strategic Studies course
• Control group: completed discussion-based curriculum with no changes
• Test group: completed 3 days of discussion-based curriculum, then self-organized into small groups and completed a problem-solving exercise
Data Collection

• Sense of Belonging measure data, from both pre- and post-course, both control and test groups

• Ethnographic data
  – 4 researchers (2 x Army Research Institute psychologists, 1 x active duty faculty member, 1 x Director of Educational Methodology)
  – Observed test group’s self-organization practices, group dynamics, and briefing delivery

• Artifacts from small group work (graphics, board work, etc.)

• Rubrics from briefings
Initial Findings: Sense of Belonging

- The test group reported an increased perception of divergent thinking among peers, while the control group reported an increased perception of convergent thinking among peers.

- Based on findings from the Sense of Belonging Measure, the implementation of the first phase of the PBL exercise does not appear to have had a significant adverse effect on the test group’s sense of belonging, comfort, or agency in the course when compared to the control group. The decrease in level of comfort and increase in sense of ambiguity reported by the test group are known effects of problem-based learning environments and do not reflect an adverse effect on learning transfer or attainment of course learning outcomes.
Initial Findings: Problem-Solving

• Students did not make use of research resources available to them; relied heavily on historical knowledge and anecdotal support

• Group dynamics varied between small groups; one small group defaulted to a one-leader model (male, infantry, outgoing) while the other was more democratic (pass the marker model)
Second Phase

• Both test and control groups will complete a PBL exercise in March 2019

• Briefing rubrics will be normed and analyzed across test and control groups