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Institution Davidson College

Name of Project Preparing for EPICS: Educational Practices Informed by Cognitive Science

Date(s) of Project 15 May 2009 – 14 May 2010

Amount Awarded \$10,000

1. Original Goals & Objectives

Long-term goal: Position ACS to obtain funding that will enhance teaching and learning by encouraging faculty to use research to inform their choices of the educational practices for their classrooms.

Short-term goals:

- (a) send two ACS faculty members to an institute connecting mind, brain, and education
- (b) support a meeting of ACS faculty who have been involved in EPICS development to discuss the information learned at the institute
- (c) support a presentation by an expert on the cognitive science of learning

2. Revised Goals & Objectives

- Meeting with ACS faculty members who have been involved with EPICS, whether in person or through meet.nitle.org, was probably an unrealistic goal given faculty schedules (see below for more details). Instead we remained in touch with Marcia White of ACS regarding everything from new grant opportunities at NSF to facilitating communication with experts for the next round of Teagle funding (e.g., Suparna Rajaram at SUNY-Stony Brook, Mark McDaniel at Washington University in St. Louis) to new technologies that may benefit the EPICS group communicating across campuses (Wiggio.com).

- We will use remaining funds to host a visit by Dr. Elizabeth Marsh in November 2010. Dr. Marsh's cognitive psychology lab at Duke University focuses on memory in young adults, how knowledge is acquired and used, and how educational practices can be informed by cognitive science. She will give a general talk on Thursday, November 4th at 4:00 to Davidson's Teaching Discussion group entitled, "Cognition in the Classroom: Applications of Cognitive Psychology to Education." She will also give a talk entitled, "Illusions of Knowledge" on Friday, November 5th in Kristi Multhaup's Cognitive Psychology class, which will be open to other students and faculty. Both talks are open to ACS colleagues.

3. How Our Goals & Objectives Were Met

- In June 2009 Kristi Multhaup and Barbara Lom attended the Connecting Mind, Brain, & Education (MBE) Institute at Harvard's Graduate School of Education. This five-day program featured talks by education faculty and was attended by a broad range of educators from around the world.

www.gse.harvard.edu/ppe/programs/prek-12/portfolio/mind-brain-education.html

- In March 2010, Dr. Todd Rose (Harvard Graduate School of Education and Center for Applied Special Technology) visited Davidson to give a presentation as part of Davidson's Teaching Discussion Group (TDG) and meet with a variety of students and faculty about the science of learning and the practice of undergraduate education. His talk was entitled, "The New Learning Sciences: How Variability in Learning Informs Teaching in the 21st Century."

- In addition to hosting Dr. Rose's visit, Davidson's TDG welcomed a new organizer (Dr. Randy Ingram replacing Dr. Cole Barton) and hosted discussions of Communicating Expectations, Team Teaching, and Risky Teaching in 2009-2010.

4. Evaluation/Assessment

Approximately 60 people attended Dr. Rose's 90-minute talk at Davidson College on Thursday, March 25th. The audience was diverse, including faculty, administrators, staff, students, and community members (including at least one K12 teacher).

Feedback from one English faculty member nicely summarizes Dr. Rose's TDG event and, importantly gives an example of how she plans to incorporate what she learned at the talk in her teaching:

I'm writing to thank you for bringing Dr. Todd Rose to campus to talk to us about how new medias affect students' perception and learning and how we might adapt our teaching to their needs. I found the talk both entertaining and useful.

The various demos he showed regarding how the brain perceives, organizes, and interprets visual and auditory information were fascinating and relevant to my work as an English professor. I teach modernism and introduce students to a great deal of experimental poetry and art. The demos help to why we have difficulties "reading" unconventional forms of representation, as well as how our brains attempt to "normalize" these experimental forms.

Even more useful to my pedagogy were Dr. Rose's later comments about how today's students have trouble filtering out distractions and need help setting goals and organizing information. His words struck a chord with me on several counts. First, I'd been counseling students who were experiencing the failure that occurs when demand exceeds the capacity of working memory. I now better understand why they are struggling and why it helps them to get away from their computers (and the infinite supply of information) and take their notebooks to an unwired setting. Second, Dr. Rose's talk gave me a "light bulb" moment for a Literary Analysis class I'm currently teaching. The individual members of this class are strong, but group dynamics have been less than satisfactory. Listening to Dr. Rose, I realized that I should stop forcing them to try to learn in a pattern that wasn't working for them, i.e. sitting in a circle and "talking" through the material. Since they DO need help organizing and interpreting information, but they work better in pairs or small groups, I'm going to alter my lesson plans to give them specific tasks that they can do in small groups, and then report and compare findings with other groups. These tasks will require them to engage in a process of organizing information they've read, determining hierarchies of importance, identifying key concepts, and then evaluating and critiquing the arguments. My hope is that they can then apply these interpretive strategies to the information processing they do, not only for my class, but for other courses as well.

I'm currently grading a set of their papers—close readings of poems by T. S. Eliot. These papers offer flashes of insight, but then often resort to interpretations based on already known experiences or assumptions that are not backed up by the language of the poems. I suspect that their working memory is being challenged by the intellectual demands of reading Eliot, and they are substituting known facts for genuine inquiry. I would like to use a couple of demos from Dr. Rose's lecture to show them what their brains are doing. He said the demos are readily available and he could provide them to us, but I had to leave before the lecture was over. Can you tell me where I can find these demos and/or send me the bibliography he provided the audience?

Thanks so much for your work educating educators!

5. If you were to redesign your project what would you do differently and why?

The logistics of getting this very busy speaker to Davidson for a TDG event and securing a title for his talk were unexpected challenges. We regret these unanticipated obstacles significantly diminished the time available to announce the event to our Davidson and ACS colleagues.

We also had doubts at the outset of the project that busy faculty from other institutions would be able to dedicate the time needed to attend an off-site event like this. In fact, locally, many Davidson faculty expressed interest in attending, but time conflicts precluded their participation. Busy faculty schedules make travel from other institutions even more challenging. In fact, an interested colleague from the nearest ACS institution (Furman) who had no teaching responsibilities on the event day cancelled at the last minute due to his workload. Given that faculty members are busy people, we wonder if shorter, easier mechanisms along with obvious incentives might help ACS reach its goals in this EPICS initiative more effectively.

Finally, the MBE Institute was exciting and informative, but the broad audience (that ranged from elementary educators to school superintendents to college faculty to police training coordinators) unfortunately diluted the content and utility of the Institute. If redesigning this project, we would seek an opportunity to learn more about mind, brain, and education that is focused on the challenges specific to higher education as well as one that provided more direct links to research literature.

6. How did your project impact other faculty on your campus?

The Teaching Discussion Group meeting featuring Todd Rose was attended by students, faculty, and staff and represented the largest turnout we'd experienced at a TDG event. Importantly, Dr. Rose's lecture was recorded and archived on line for viewing by Davidson faculty who were unable to attend, reaching even more Davidson faculty.

7. How did the project impact the institution as a whole?

This project raised awareness of how individual differences in learning can enhance learning for all. Multiple components

of Davidson College were involved in Dr. Rose's talk well beyond students and faculty. Library, Information Technology, Dean of Students Office, Math & Science Center, and Counseling Center staff all interacted with Dr. Rose at various points during his visit. Moreover, this project opened important new doors to the benefits of including guest speakers in future Teaching Discussion Group activities as well as engaging students, faculty, and staff in conversations about teaching and learning.

8. If students were involved, what was the impact on them?

Davidson undergraduates were both directly and indirectly involved in this initiative. Directly, at least 25 students attended Dr. Rose's public seminar alongside staff and faculty and several members of the student organization, Students for New Learning (SNL) met with Dr. Rose over breakfast. Indirectly, Davidson students will be affected by faculty who use information learned in Dr. Rose's talk to make teaching and learning more effective.

9. How have you shared the results with ACS colleagues and beyond ACS? What are your plans for dissemination?

Our Information Technology Group recorded Dr. Rose's talk and director Kristen Eshleman has made DVDs of the talk available for the exclusive use of ACS faculty and staff who have been part of ACS's conversations on infusing information from cognitive science into undergraduate education throughout the consortium.

10. Did any publications result from this project? If yes, list here.

No publications resulted from this work, though this question stimulates the idea that an essay generally describing Davidson's Teaching Discussion Group efforts in a pedagogical journal might be an appropriate goal we had not before considered.

11. What are the next steps (follow-up) in your project?

- Continue conversations with ACS team regarding how the science of learning can be applied to undergraduate education with our new insight into the challenges
- Continue conversations of cognitive research within Davidson's Teaching Discussion Group in future events
- Open conversations with Davidson's new Associate Dean for Teaching and Learning for other opportunities to enhance undergraduate education at Davidson and the ACS

12. Complete financial statement.

	Original Budget	Actual Budget
(a) Connecting the Mind, Brain, & Education Institute		
Registration	\$5,250	\$5,250
Airfare, Hotel, & Meals	\$2,296	\$1,823.16
	\$7,546	\$7,073.16
(b) Workshop on Science of Learning at Davidson's Teaching Discussion Group		
Expert Travel and honorarium	\$954	\$2,000
ACS faculty travel	\$1,500	\$0
	\$2,454	\$2,000
TOTAL	\$10,000	\$9,073.16

Note: The remaining \$926.84 will be used to support the November 4-5, 2010 visit by Dr. Elizabeth Marsh (Duke) to give a talk for the Teaching Discussion Group as described above in section two.

13. Please include a summary of your work that may be included on the ACS Faculty Renewal website.

In 2006 three Davidson faculty members started a grassroots Teaching Discussion Group (TDG) to increase opportunities for all faculty members to engage in discussions of the art and science of teaching. Since then the TDG has sponsored two discussions each semester examining specific aspects of teaching across the curriculum. More recently, two of Davidson's TDG organizers had been involved in conversations with other educators at various ACS institutions regarding ways the consortium could integrate results from scientific research on learning into the design of undergraduate education. This faculty renewal project sent these two Davidson TDG coordinators to Harvard's Mind, Brain, and Education Institute in summer 2009 and allowed Davidson's TDG to host a speaker from this institute on the science of learning that was open to other ACS faculty in the spring of 2010. ACS faculty interested in viewing a DVD recording of the talk should contact Marcia White at ACS.