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Title of Proposed Presentation

Disciplinary Differences in Deep Approaches to Learning and the Connection of these Approaches to Student Outcomes

Preferred Format: On-site in Warsaw

Indication of Accompanying Paper for Online Discussion (encouraged but not required)

Nelson Laird, T. F., Shoup, R., Kuh, G. D., & Schwarz, M. J. (2008). The effects of discipline on deep approaches to student learning and college outcomes. *Research in Higher Education, 49*, 469-494.
<http://www.jstor.org/stable/25704578>

Nelson Laird, T. F., Seifert, T. A., Pascarella, E. T., Mayhew, M. J., & Blaich, C. F. (2014). Deeply affecting first-year students' thinking: Deep approaches to learning and three dimensions of cognitive development. *Journal of Higher Education, 85*, 402-432.
<https://doi.org/10.1080/00221546.2014.11777333>

Abstract

Deep approaches to learning (DAL) represent student engagement in activities that emphasize integration, synthesis, and reflection. Because students and faculty share responsibility for learning, it is important to understand how much faculty members emphasize DAL, how often students employ these approaches, and the relationship between DAL and student outcomes. Using data from the National Survey of Student Engagement (NSSE) and Faculty Survey of Student Engagement (FSSE), we found DAL were more prevalent in Biglan's soft, pure, and life fields compared to their counterparts and that seniors who engage more frequently in DAL report greater educational gains, higher grades, and greater satisfaction with college, and that the strength of these relationships was relatively consistent across disciplinary categories. In a second study, using data from NSSE and the Wabash National Study of Liberal Arts Education, a different set of co-authors and I found that first-year students' gains in critical thinking, need for cognition, and positive attitudes toward literacy were positively associated with DAL.

Description of Study

Given the structure and description in the call, I have oriented this proposal toward a particular pair of studies that are illustrative of one of my areas of work and the kinds of projects in the Center for Postsecondary Research (CPR). The primary purpose of the presentation is to describe those two studies. An important secondary purpose, though, is to introduce researchers at the University of Warsaw School of Education (UW SoE) to approaches to assessment currently being undertaken in CPR (e.g., the National Survey of Student Engagement, NSSE, and the Faculty Survey of Student Engagement, FSSE). As a result, the session can lead to discussions of how to replicate and extend the particular studies I present, how similar projects can be pursued on different topics with similar data, and how similar assessment projects might be developed by folks at UW for the higher education context in Poland, as we have seen in other countries (e.g., Denmark, Ireland, South Africa).

The following sections describe important aspects of each study, as outlined in the call. More complete descriptions call obviously be found in the full articles.

Problem and Purpose

Though much has been done to understand the approaches students take to studying and learning, much less is known, particularly on a large scale, about disciplinary differences in how students approach learning and how faculty members encourage certain approaches. In addition, the relationship between approaches to learning and learning, while often assumed, is much less often empirically documented,

again, especially on a large scale. Further, how the strength of this relationship varies by disciplinary area has so far rarely been explored.

As a result, the purpose of the first study was twofold. First, we examined the effect discipline has on the use of deep approaches to learning (DAL). Does discipline systematically influence the preference for deep learning approaches and is the influence consistent across students and faculty?

The second purpose was to examine the relationships between deep learning approaches and three student outcomes: student self-reported gains in personal and intellectual development, satisfaction with college, and self-reported grades. In particular, we were interested in whether the strength of the relationship varies by disciplinary area in a manner consistent with differences in the amount deep approaches to learning were utilized in disciplinary areas. If the relationship is weak or near zero in fields that score low on DAL, there is little reason to argue that those fields should consider changing their practices. If, on the other hand, there is an equally strong connection, students and faculty in lower scoring fields should consider changing their practices, particularly if they are interested in improving student performance on the outcomes under study.

Given that relatively few studies have investigated empirically the deeper learning outcomes presumed to result from a student's use of DAL, the purpose of the second study was to estimate the relationships between DAL and three dimensions of cognitive development. In particular, we sought to estimate the effects of four DAL measures, an overall DAL scale and its three subscales, on measures of students' critical thinking skills, inclination to inquire, and orientation toward literacy controlling for many covariates and students' scores on the outcome measures prior to college.

Design and Analyses

For the first study, we used a cross-sectional design utilizing data from NSSE and FSSE, which contains information from thousands of students and faculty members from hundreds of US colleges and universities. Students' majors and faculty members' departments were categorized using Anthony Biglan's Hard-Soft, Pure-Applied, and Life-Non-Life dimensions. Regression analyses on the DAL scale and sub-scales were run to examine differences by Biglan's dimensions and the resulting eight categories of disciplinary areas, controlling for a host of student and faculty characteristics. Regression analyses were also run to examine the relationships between DAL and three outcomes—student perceived gains in personal and intellectual development, satisfaction with college, and self-reported grades—controlling for student characteristics. In addition, interactions terms (DAL x disciplinary area) were used to test whether the effects of DAL on the outcomes varied by disciplinary area.

For the second study, we used a pre-post design. Data were collected from students at 19 institutions at the beginning and end of their first year. Critical thinking skills, need for cognition, and positive attitudes toward literacy were measured using established instruments and DAL were captured at the end of the first year again using NSSE's items. We used regression models for each outcome (post-test) with DAL as the independent measure of interest and the pre-test of each outcome as the key control variable, with other controls also in the models.

Findings and Limitations

In the first study, the mean DAL scores indicate that faculty members emphasize and seniors use DAL regularly across the disciplinary types. For the overall scale, which had possible values from 1 to 4, means ranged from 2.78 in the hard-applied-life fields to 3.03 in the soft-pure-life fields for seniors and from 2.49 in the hard-pure-non-life fields to 3.20 in the soft-applied-life fields for faculty. The results show that student and faculty reports of their emphasis on DAL vary significantly by disciplinary area. In all but one of the models, two or three of the discipline indicators were significant predictors with many moderate to

large effect sizes. In addition, the results suggest relative consistency across disciplines in the strength of the relationships between DAL and the three student outcomes.

In the second study, even controlling for pre-college scores, the findings show that the overall DAL measure was related to two important college outcomes even after controlling for pre-college scores. The results of the general effects regression analysis on each dependent measure for the models that included the overall DAL Scale show that DAL had no significant effect on critical thinking (though sub-scale analysis showed a relationship for reflective learning), but had modest and statistically reliable, positive effects on both need for cognition and positive attitudes toward literacy that persisted even in the presence of controls for a wide range of potential confounding influences—including pre-college academic preparation and pre-college scores on each dependent measure.

In understanding the studies' findings, several limitations should be kept in mind. Institutional selection for study participation and student and faculty member self-selection for participation likely limit the generalizability of the findings. Further, the NSSE measures of DAL focus on general, rather than, specific uses of DAL. This confounds the exploration of disciplinary differences, likely leading to an underestimation, since students often take courses in multiple fields at once, though any given senior is likely to be taking multiple courses in her/his major. Finally, due to instrument design, analytic technique, and sample, some covariates were unable to be included in some analyses.

Contribution

While concerns about the quality of college and university student learning exist, the results of these studies suggest that many students across all disciplinary areas engage in deep approaches to learning. In addition, their involvement in these kinds of activities is associated with higher levels of personal and intellectual development as well as satisfaction with college. But there is also considerable room for improvement inasmuch as none of the disciplinary areas examined scored at the top on all approaches to learning for either students or faculty. In addition, the relatively high scores across disciplines suggest that there are probably good examples of productive instructional strategies and activities to emulate, both within one's discipline as well as in other disciplinary areas.

Our results suggest that DAL have important effects on first-year students' need for cognition and positive attitudes toward a range of literacy activities. We also show that reflective learning, a sub-component of DAL, had a small effect on critical thinking skills. Though small, this effect should not be over trivialized because it was found after controlling for pre-college scores on the outcome and pre-college academic ability. Further, we show that among first-year students, the effects of DAL did not vary significantly by student groups or academic ability. Though these findings are important, there is room to improve the development of critical thinking skills, need for cognition, and PATL in the first year. Such improvement will likely require designing more effective learning tasks and the deliberate connection of those tasks to DAL by faculty members.

Potential Areas of Future Collaboration with Faculty from UW SoE

Given the two studies described above and the projects from which the data were gathered, there are many areas of potential collaboration with faculty from UW SoE. These include:

- Study replication within Polish higher education
- Study replication within the specific contexts of schools of education with the potential addition of cross-cultural comparisons between US, Polish, and, perhaps, other national contexts
- Similar studies with other student engagement and/or other outcome measures within Polish higher education and/or with cross-cultural comparisons
- Beginning similar large-scale assessment projects within Polish higher education