Faculty Engagement in Online Discussion Forums

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***Abstract*— Faculty engagement is generally regarded as a key factor related to student success. This exploratory study examined the relationship between faculty engagement in discussion forums of fully online courses and student course level success. The results did not find any meaningful relationships been faculty engagement in the online discussion forums and student perceptions of faculty, length of student posts, or student grades. The results and future directions are discussed.**

I. Introduction

Faculty engagement and presence is widely believed to be an important factor related to student success. This preliminary work investigated this relationship within the specific context of discussion forums of fully online courses. More specifically, the focus of this paper was to operationally define faculty engagement in online discussion forums and evaluate its relationship with a set of outcome variables hypothesized to be sensitive to faculty engagement.

II. Methodology

A. Sample

The sample consisted of Blackboard discussion forum data from approximately 4,800 ASU Online (ASUO) A & B session sections offered between 2015 - 2017. The sample did not include discussion forum data from any other sources (e.g., Pitch, YellowDig, Piazza).

Graduate courses were removed from the sample as well as course sections with fewer than five students. Furthermore, there were some instances of forum posts being duplicated when a Blackboard shell was copied for a given section. In such cases the duplicate observations were removed from the data set.

B. Types of Engagement

Three measures of faculty engagement were operationally defined based on initial conversations with a subset of instructional designers from the Instructional Design New Media (IDNM) team. These measures are not meant to represent a definitive or exhaustive list of faculty engagement. Instead they are meant to serve as an initial attempt to circumscribe the construct within the context of discussion forums. Other, potentially richer forms of faculty engagement (e.g., analysis of the content of faculty posts) were not investigated due to the limited availability of such data. This remains an area for future research.

Presence of a Hallway Conversation (HC): HCs are instructor-initiated discussion forums that allow students to post general questions about a course for instructors to answer. Since having a HC in a course is at the discretion of the instructor, the presence of such a forum was viewed as a form of faculty engagement. HCs were defined as any forum that had hallway in the title. For consistency and scalability, discussion forums that with different titles (e.g., office hours) were not counted as a HC, even if they may have served a similar function.

Post Consistency: Generally speaking, consistency was defined as a function of the variation in faculty posting behavior throughout the course.[1] Those who post roughly the same amount from week to week will have high measures of consistency, whereas those with erratic posting behaviors will have low consistency.

Post Quantity: The number of faculty posts were seen as a measure of faculty engagement. Faculty who had more posts were regarded as being more engaged.

C. Outcome Variables

A series of correlational and regression analyses were conducted to measure the relationship between the aforementioned measures of faculty engagement and the following outcome variables hypothesized to be sensitive to faculty engagement:

Student Perceptions of Faculty Engagement: The average student response to the following course evaluation questions:

- ”The instructor provided meaningful feedback on graded work”
- ”The instructor responded to inquiries within 24 hours”
- ”The instructor was visibly present in the course” (e.g. posting announcements, participating in discussions, etc.)

All responses were on a five-point scale, ranging from 1 (low) to 5 (high). The course evaluation data were not available for all courses. The data were missing for approximately one-third of the courses.

Student Posts: The average number of posts per student in a given course

Student Grades: The average student grade in a course-section, converted to a numeric scale using the ASU grading policy (e.g., A+ = 4.33, A = 4.0, etc.)

[1]The standard deviation of the set defining the number of faculty posts in week 1, week 2, etc. is calculated first to give a measure of variation. We then define consistency as the reciprocal of that value, so that higher values indicate less variation.

III. Results

Below are the research questions that were explored and a summation of the findings. More detailed results are provided in Appendix A.

A. Hallway Conversations

Is the presence of a Hallway Conversation associated with meaningfully higher or lower **course evaluation scores?**

- No, there was no meaningful relationship between the presence of a HC and average course evaluation scores on items related to faculty feedback, responsiveness, and visibility.

Is the presence of a Hallway Conversation associated with the average **number of posts per student**?

- No, there was no meaningful relationship between the presence of a HC and the average length of student posts.

Is the presence of a Hallway Conversation associated with the average **student course grade**?

- No, there was no meaningful relationship between the presence of a HC and the average student course grade.

B. Faculty Post Consistency

Is the consistency of faculty posts associated with meaningfully higher or lower **course evaluation scores**?

- No, there was no meaningful relationship between the consistency of faculty posts and average course evaluation scores on items related to faculty feedback, responsiveness, and visibility.

Is the consistency of faculty posts associated with the average **number of posts per student**?

- No, there was no meaningful relationship between the consistency of faculty posts and the average number of posts per student.

Is the consistency of faculty posts associated with the average **student course grade**?

- No, there was no meaningful relationship between the consistency of faculty posts and the average student course grade.

C. Faculty Post Quantity

Is the number of faculty posts associated with meaningfully higher or lower **course evaluation scores**?

- No, there was no meaningful relationship between the number of faculty posts and average course evaluation scores on items related to faculty feedback, responsiveness, and visibility.

Is the number of faculty posts associated with the average **number of posts per student**?

- No, there was no meaningful relationship between the number of faculty posts and the average length of student posts.

Is the number of faculty posts associated with the average **student course grade**?

- No, there was no meaningful relationship between the number of faculty posts and the average student course grade.

IV. Conclusions

Overall, it does not appear that faculty engagement in the online discussion forums, as defined in this study, are related to student perceptions of faculty, length of student posts, or student grades. These results are counterintuitive since faculty engagement is widely believed to be a key factor in student success. There are several hypothesized explanations for the results. Perhaps students do not attribute a great deal of weight to the discussion forums and the level of faculty engagement in them. That is, their perceptions of faculty, posting behaviors, and overall performance in the course appear to be based largely on other factors in the course (e.g., alignment of learning activities and assessments, speed of feedback on graded assignments and projects, etc.). It is also possible that the effect of faculty engagement is more binary in nature, rather than linear, as explored in the current study. Students may not be affected by the degree of faculty engagement as long as the there is some level of faculty engagement in the discussion forums. In short, any presence or complete absence of faculty engagement in discussion forums may be the most influential factor. Students may also expect, based on prior experience, variability in faculty engagement in discussion forums and are therefore resilient and adaptive to such fluctuations.

The results may also be an artifact of the way faculty engagement was operationally defined for the present study. The current definitions were chosen in order to systematically and consistently evaluate faculty engagement at scale across a broad array of courses. These definitions may be overly reductionistic conceptualizations of the construct that do not validly capture faculty engagement within the context of discussion forums. For example, faculty engagement may be course specific (e.g., engagement in a math course may be very different than engagement in a sociology course) and/or primarily qualitative in nature (e.g., content of posts rather than quantification of posts), neither of which get adequately captured in aggregated quantitative analyses. This line of reasoning prompted an impromptu exploratory qualitative analysis that revealed discussion forums are used by faculty in very different ways. For example, some faculty used the discussion board as an optional (i.e. not graded) venue for students to discuss ideas related to the course. In other courses, faculty used discussions as a means for students to submit what amounted to short papers. Additionally, the grade weighting for discussion board participation varied drastically amongst courses (e.g., 5% to 65%). Given these dramatically different uses of discussion forums, we would expect that faculty engagement would also have a different impact depending the use and grade weight of a forum. Future research could involve analyzing the relationship between the ways discussions are being used to faculty engagement and the previously stated outcomes.

In addition in the aforementioned results, the authors noticed a trend when examining the average number of posts by student per week: The majority of posts lie within the two to four post range per week (See Fig. 1). This is likely

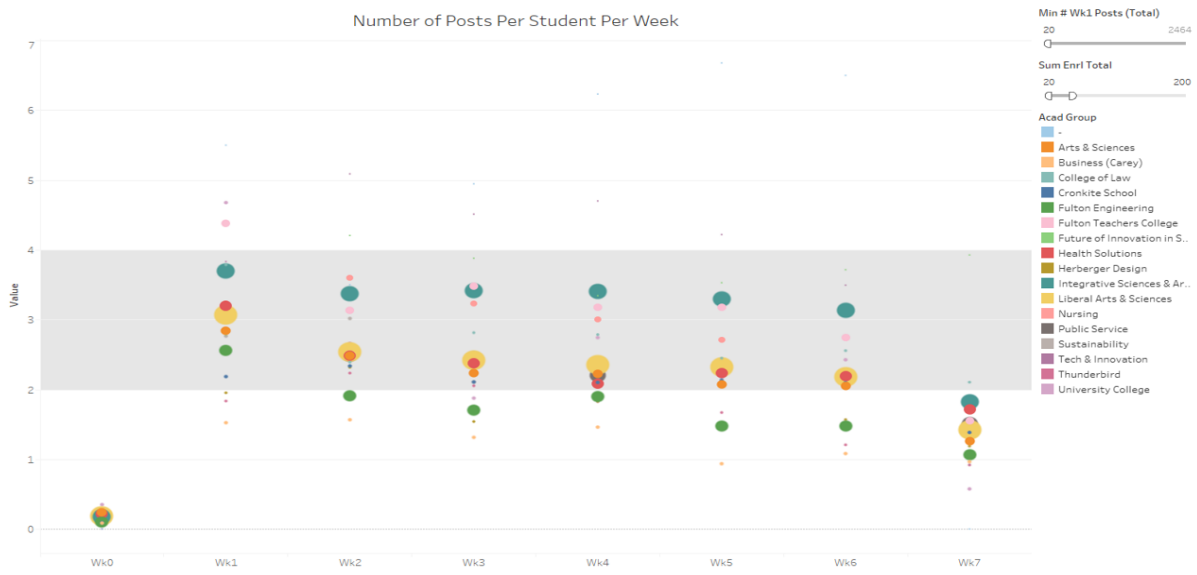

Fig. 1. Number of posts per student per week by academic group/college. The size of the bubble corresponds to the total number of courses delivered by a given academic group/college. Only includes courses with 20-200 students enrolled and at least 20 posts in the first week.

due to the widely adopted institutional practice of requiring students to write an original post and two replies per week. In other words, student behavior appears to be conforming to the de facto minimum expectations. Although this may not be surprising, it reinforces the impact such decisions and practices have on student engagement. The results may also represent students' perceived value of discussion forums.

V. Future Directions

There are several directions to further the current study. The first is to broaden the conceptualization and evaluation of faculty engagement within the context of discussion forums to provide greater insight for faculty and instructional designers, such as evaluating the content of faculty and student postings and/or teasing out the relationship between the way a discussion was designed and faculty engagement in that discussion. For example, discussions could be used for a variety of purposes: knowledge construction, to analyze and test assumptions and known misconceptions, gain richer understanding of topic complexity, assimilate new knowledge with previous understanding, reflect on a concepts real world impact among other applications. We would expect a faculty's involvement to have a different impact in a course where a discussion is intended to help students make connections between two key concepts that will later be tested on, compared a student group discussion intended to offer students the opportunity to gain initial feedback before they submit a formal research proposal. By evaluating the relationship between faculty engagement and student success within the context of the intended purpose of the discussion forum, we may uncover a more nuanced understanding of which measures would be appropriate to evaluate student and faculty interactions, while also having clearer insight into the potential downstream impact of those interactions (i.e., which course assessments would likely be impacted from a particular discussion forum).

The second extension of the current study is to expand it to include conceptualizations of faculty engagement outside of discussion forums, including the faculty presence/engagement behaviors encouraged in the EdPlus Master Class faculty training. For example, the relationship between student outcomes and faculty communication outside of the forums, such as welcome videos, weekly updates, and/or faculty grading responsiveness and feedback. This would provide a much larger and richer portrait of faculty engagement in online courses to help inform instructional design and facilitation practices. The exact direction and scope of the next steps will be collaboratively developed with IDNM and faculty input with an emphasis on lines of inquiry that provide strategic utility and actionability to those groups of stakeholders. ■

APPENDIX

A. Hallway Conversations

Is the presence of a Hallway Conversation meaningfully associated with meaningfully higher or lower course evaluation scores?

- **Faculty Feedback:** There was a significant difference ($t_{2100} = 3.487, p < .001$) in the average instructor feedback course evaluation score between courses that had ($\bar{x}$ = 4.23) and did not have ($\bar{x}$ = 4.31) a Hallway Conversation. The size of the difference in the sample, 0.08, was small: d [2] = .13 (95% CI = $[0.035, 0.125]$).
- **Faculty Responsiveness:** There was a significant difference ($t_{2290} = 5.56, p < .001$) in the average instructor responsiveness course evaluation score between courses that had ($\bar{x}$ = 4.36) and did not have ($\bar{x}$ = 4.47) a Hallway Conversation. The size of the difference in the sample, 0.11, was small: $d = .21$ (95% CI = $[0.069, 0.144]$).
- **Faculty Visibility:** There was a significant difference ($t_{2162} = 3.539, p < .001$) in the average instructor responsiveness course evaluation score between courses that had ($\bar{x}$ = 4.37) and did not have ($\bar{x}$ = 4.44) a Hallway Conversation. The size of the difference, 0.11, was small: $d = .13$ (95% CI = $[0.033, 0.115]$).

Is the presence of a Hallway Conversation associated with the average number of posts per student?

- No, there was no meaningful relationship between the presence of a HC and the average number of posts per student. In a simple linear regression predicting number of posts per student, $\beta = 0.1486$ with standard error 0.3289 and $p = 0.651$, indicating a lack of statistical significance.

Is the presence of a Hallway Conversation associated with the average student course grade?

- No, there was no meaningful relationship between the presence of a HC and student perceptions average student course grade. In a simple regression model predicting average student GPA in a course-section, $\beta = 0.0358$, with standard error 0.0153 and $p = 0.019$. Despite its statistical significance, the actual effect is negligible.

B. Consistency of Faculty Posts

Is the consistency of faculty posts associated with meaningfully higher or lower course evaluation scores?

- **Faculty Feedback:** There was no significant relationship between the average instructor feedback course evaluation score and faculty post consistency based on a simple regression model, $\beta = -7.606\text{e}{-6}, p = 0.999$.
- **Faculty Responsiveness:** There was a significant negative relationship between average instructor responsiveness course evaluation score and faculty post consistency based on a simple regression model without covariates, $\beta = -0.016, p = 0.012$. However, the size of the effect is small.
- **Faculty Visibility:** There was a significant negative relationship between average instructor responsiveness course evaluation score and faculty post consistency based on a simple regression model without covariates, $\beta = -0.026, p < .001$. However, the size of the effect is small.

Is the consistency of faculty posts associated with the average number of posts per student?

- There was a significant negative relationship between the consistency of faculty posts and the number of posts per student, $\beta = -0.6498, p = 0.016$. However, the size of the effect is small.

Is the consistency of faculty posts associated with the average student course grade?

- There was no significant relationship between the consistency of faculty posts and the average student course grade, $\beta = 0.018, p = 0.15$

C. Number of Faculty Posts

Is the number of faculty posts associated with meaningfully higher or lower course evaluation scores?

- **Faculty Feedback:** There was no significant relationship between the average instructor feedback course evaluation score and number of faculty posts based on a simple regression model without covariates, $\beta = 0.0001, p = 0.391$.
- **Faculty Responsiveness:** There was a significant positive relationship between the average instructor responsiveness course evaluation score and number of faculty posts based on a simple regression model without covariates, $\beta = 0.001, p < 0.001$. However, the size of the effect is negligible.
- **Faculty Visibility:** There was a significant positive relationship between average instructor responsiveness course evaluation score and number of faculty posts based on a simple regression model without covariates, $\beta = 0.001, p < 0.001$. However, the size of the effect is negligible.

Is the number of faculty posts associated with the average number posts per student?

- There was a significant positive relationship between the number of faculty posts and the average number of posts per student, $\beta = 0.0276, p < 0.001$. However, the size of the effect was small.

Is the number of faculty posts associated with the average student course grade?

- There was a significant negative relationship between the number of faculty posts and the average student course grade, $\beta = -0.0006, p < 0.001$. However, the size of the effect was small.

[2]Cohen's d is an effect size used to indicate the standardized difference between two means