This paper explores which of several formats in threaded discussions seem to work best for student learning. Student surveys were conducted over a period of three years asking which of four types of threaded discussions were most valuable to them in the online learning environment. The first study was conducted in 2013-2014, followed by a second study conducted in 2015-2016. Each study was composed of multiple student surveys administered in the fall, spring, and summer terms. Graduate and undergraduate students in Business and Education classes were surveyed. Courses were taught both in the partially online and fully online formats. The setting was a mid-size private university in Southwestern Pennsylvania. Results differed. In each of the surveys, students were asked to choose which of the four formats for threaded discussions they preferred. More than a quarter of the participants in the first study responded that they liked all of the formats “about the same.” In the second study, almost a third of the students said they preferred discussion formats that allowed them to express an opinion on a scenario or an example provided by the instructor. This paper examines the possible basis for the differences.

Keywords: E-Learning, threaded discussions.

1 INTRODUCTION

There have been a number of studies on the best use of discussion forums as effective learning tools. As online education continues to grow in importance and its influence is being felt across campuses world-wide [1], how well it delivers instruction is critical. Because the threaded discussion is widely used as an instructional tool in online course delivery, its evaluation as an effective means for e-learning is relevant to how well online education delivers instruction. Andresen [2] asked the basic question, as asynchronous discussion replaces face-to-face interaction in the traditional classroom setting, does it enhance student learning? He found that while there were limitations, asynchronous discussion formats can provide “the critical dimensions of learning” found in the onground setting. Hew [3] examined peer facilitation versus instructor facilitation, asking which was more effective in a threaded discussion. Hew found that peer facilitation worked best when students wanted to voice their own views, to determine the direction of the discussion, or to have the facilitation experience. Instructor facilitation was preferred in cases where there were conflicts, where the discussion had gone off track, or when information or motivation was needed. In their review of the literature on forum use and asynchronous online discussion, Loncar, Barrett, & Liu [4] noted that with technological advances have come changes in instructional-based technology leading to a “profound” paradigm shift. That is, students are now expected to interact with peers as well as with the course material, and to discuss relevant issues. They remark that instructors have become more aware and appreciative of online forums, such as threaded discussions, to achieve learning goals.

Rizopoulos and McCarthy [5] have claimed that “Online dialogic communities have become a ubiquitous tool that transforms student learning and course delivery” [5, p. 373]. A targeted evaluation of the best formats for threaded discussions is relevant to answering the question of which tools most effectively enhance student learning in an online environment. In her study of students’ interactions with peers in online discussions, Lai [6] looked at how effectively students demonstrated critical thinking skills in those online discussions. Results were mixed. While many students could demonstrate critical thinking skills in the discussion, others could not. She concluded that to do well, a rubric with examples should be part of the instructional format to enable students to familiarize themselves with the required skill assessment.

Joyner [7] too focused on student interaction in threaded discussions and the development of students’ critical thinking skills. Acknowledging the challenges presented by asynchronous threaded discussions in presenting material in a way that resulted in meaningful discussions, she found that
with the addition of a visual metaphor to the format (a word cloud example), interaction among students in the discussion was both more meaningful and did evidence some level of critical thinking.

Gao, Zhang, and Franklin [8] argued that well-designed asynchronous online discussion is critical in online instruction, in part because it helps to promote dialogue, reflection, knowledge construction and self-assessment. Tu, Blocher, and Gallagher [9] compared the effect of threaded discussions versus flat-structure discussions on student learning. What they found was that both formats could be effective if both learners and instructors could shift from “online” to “network.” In so doing, educators would, they argued, empower learners to build more effective learning structures.

In their discussion of student choice of online discussion formats for adult learners, Lin and Overbaugh [10] found that choice positively influenced student satisfaction, but had no significant effect on learning. Working with high school students, Beach and Doerr-Stevens [11] looked at the use of social networking sites for role-playing, specifically for building argumentative writing skills. They found that learning was enhanced as students were exposed to competing perspectives on different issues and, arguably, to higher level critical thinking.

Levine [12] suggested that the use of discussion boards in e-learning environments can have a unique capacity to support higher-order constructivist learning and the development of a learning community. If, in fact, the use of discussion boards can facilitate higher-order learning, how discussion threads are structured matters. How discussion threads are structured must also include the instructor’s role. As Andresen [2] noted in his discussion of best practices for asynchronous discussion forums, the threaded discussion needs to be as instructor-intensive as it is in the traditional on-ground setting.

This study is set within a broader inquiry on the value of threaded discussions in enhancing e-learning. With regard to whether students find threaded discussions in general to be valuable to them in learning course material, results in this study were consistent with earlier studies by Best and Shelley [13, 14] and Shelley and Best [15]. Researchers found that students in both studies perceived threaded discussions to be only somewhat helpful [16]. Apparently, whichever format for the threaded discussion is used, it had little impact in this study on the overall inquiry on students’ perception of the value of threaded discussions.

2 THE STUDY

Researchers were interested in examining best practices in the use of threaded discussions in online courses. Over a period of three years, instructors in graduate and undergraduate courses in the School of Business and in the School of Education asked their students which type or types of discussion board formats they felt were most helpful to them in learning the course material.

3 METHODOLOGY

Researchers developed a 16 question survey in Question Pro, a web-based survey tool supported by the University. The first survey instrument used in 2013-2014 and repeated in 2015-2016 was adapted from one designed by Shelley and Best [15] to determine student perceptions of the value of threaded discussions in fully online and in blended learning courses.

The first four questions asked about enrollment status, gender, academic level, and experience with online courses. These demographic questions were followed by ten questions that focused on the respondents’ view of certain elements of the threaded discussions. One question asked if given a preference, would the student choose an online course over one that was face-to-face. Another asked if the student preferred a written assignment to a threaded discussion as an assessment of learning. There were two questions on the use of rubrics in threaded discussions.

The sixth question set out the four types of threaded discussion formats: specific answer, opinion on an example or scenario, discussion of controversial issues, and role-play. The fifth and sixth choices were neutral – all the same, or do not like any.

There were two optional open-ended questions asking for additional comments. In each class, instructors offered extra credit to students who were willing to complete the survey. Results were transferred into SPSS for analysis. Not all of the questions were relevant for this study.
3.1 Participants/Sample

In both studies, participants were drawn from undergraduate and graduate business law classes, from graduate courses in educational technology and education research, and from the master’s program in human resource management.

Of the 915 students who began the surveys, 867 completed them, for a completion rate of 94.75%. Undergraduates made up 57.85% of the combined sample. Graduate students made up 42.14% of the combined sample. Females represented the majority of the participants (64.66%). Males made up 35.33% of the combined sample. Full-time students accounted for 71.55% of the combined sample, while part-time students comprised 28.44% of the combined sample.

More than 35% of the students had taken between one and three online courses, followed by 24.57% for whom this course was their first experience with online learning. Approximately 21% said they had taken between four and seven online courses. Nine percent of the participants reported having taken between eight and ten online courses. “Online” was defined to include onground courses with an online component.

3.2 Research Question

In a threaded discussion, do students prefer one question format over another for learning course material?

4 RESULTS

The research question asked whether students preferred one question format over another in a threaded discussion to learn course material. When survey responses from both studies were combined, 28.6% said that they preferred questions asking the student for their opinions on an instructor’s example or scenario, followed by responding to controversial issues (23.45%).

But there were differences between the two studies on the research question. In each of the surveys in both studies, students were asked to choose which of the four formats for threaded discussions they preferred. These were “specific answer,” “opinion on an example or scenario presented,” “response to controversial issues,” or “role-playing scenarios.” Students could also answer that they liked all “about the same” or did not like any of the formats for threaded discussions.

In the 2013-2014 study, more than a quarter of the students said they liked all “about the same.” Approximately a fifth of the participants in the first study chose “specific answer” (20.93%), “opinion on an example or scenario presented” (20.16%), or “response to controversial issues” (19.38%). Slightly more than 10% chose “role-playing scenarios.”

In the 2015-2016 study, 31.65% of the students said they preferred discussion formats that presented a scenario or an example on which they could express an opinion. Approximately a quarter preferred responding to controversial issues (24.93%). Nineteen percent of the respondents in the second study said they liked all “about the same.” Role-playing scenarios was identified by 8.96% of the participants as a preferred format for learning course material imbedded in threaded discussions.

In both studies, just over 3% elected “I really don't like any of these formats.”

Independent Samples T-tests were conducted to determine the correlation of format preference with gender, enrollment status, educational level and experience with online learning in the second study. There were no statistically significant differences with regard to any of these demographic variables.

Of the 157 responses to the open-ended question asking if participants had any additional comments, there were 37 references to the value of opinions, scenarios or examples in threaded discussions; controversial issues were noted in seven responses; role-play was noted three times. There were six references to specific answer questions. There were seven references each to the value of personal experience and of being exposed to different perspectives. Both of these could be viewed as supporting the second and third formats, opinions on scenarios and discussion of controversial issues.

Table 1 presents the findings on the research question, “In a threaded discussion, do students prefer one question format over another for learning course material?” Not all students responded to each question.
### Table 1. Preferred Format for Threaded Discussions.

<table>
<thead>
<tr>
<th>Format</th>
<th>2013-2014 Study Count/Percent</th>
<th>2015-2016 Study Count/Percent</th>
<th>Combined Results Count/Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Answer</td>
<td>27 / 20.93%</td>
<td>44 / 12.32%</td>
<td>71 / 14.60%</td>
</tr>
<tr>
<td>Your opinion on an instructor’s example or scenario</td>
<td>26 / 20.16%</td>
<td>113 / 31.65%</td>
<td>139 / 28.60%</td>
</tr>
<tr>
<td>Your response to controversial issues</td>
<td>25 / 19.38%</td>
<td>89 / 24.93%</td>
<td>114 / 23.45%</td>
</tr>
<tr>
<td>Role-playing scenario, puts you in a decision making position</td>
<td>13 / 10.08%</td>
<td>32 / 8.96%</td>
<td>45 / 9.25%</td>
</tr>
<tr>
<td>I like all of them about the same</td>
<td>34 / 26.36%</td>
<td>68 / 19.05%</td>
<td>102 / 20.98%</td>
</tr>
<tr>
<td>I really don’t like any of these formats</td>
<td>4 / 3.10%</td>
<td>11 / 3.08%</td>
<td>15 / 3.08%</td>
</tr>
</tbody>
</table>

In both studies, the majority of the students classified themselves as full-time. Undergraduates formed the majority of respondents in the first study. In the second study, undergraduates were still in the majority, but by a smaller percentage (51% to 49%). Females outnumbered males, 77% to 23% in the first study, but in the second, the ratio was more balanced, 53% female to 47% male. Experience with online learning was roughly even. Thirty-six per cent of the students in the first study reported having taken one to three online courses. In the second study, 35% reported having taken one to three online courses. Table 2 displays the demographic profile of the respondents. Not all students responded to each question.

### Table 2. Demographic Profile.

<table>
<thead>
<tr>
<th>Category</th>
<th>2013-2014 Study Number/Percent</th>
<th>2015-2016 Study Number/Percent</th>
<th>Combined Results Number/Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment Status</td>
<td>FT- 328 / 77.35%</td>
<td>FT- 306 / 66.23%</td>
<td>FT- 634 / 71.55%</td>
</tr>
<tr>
<td></td>
<td>PT- 96 / 22.64%</td>
<td>PT- 156 / 33.76%</td>
<td>PT- 252 / 28.44%</td>
</tr>
<tr>
<td>Educational Level</td>
<td>UG-276 / 65.24%</td>
<td>UG-236 / 51.08%</td>
<td>UG - 512 / 57.85%</td>
</tr>
<tr>
<td></td>
<td>Grad-147 / 34.75%</td>
<td>Grad-226 / 48.91%</td>
<td>Grad- 373 / 42.14%</td>
</tr>
<tr>
<td>Gender</td>
<td>F- 327 / 77.23%</td>
<td>F-244 / 53.04%</td>
<td>F-571 / 64.66%</td>
</tr>
<tr>
<td></td>
<td>M- 96 / 22.69%</td>
<td>M- 216 / 46.95%</td>
<td>M- 312 / 35.33%</td>
</tr>
<tr>
<td>Experience with Online learning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 courses</td>
<td>120 / 28.23%</td>
<td>98 / 21.21%</td>
<td>218 / 24.57%</td>
</tr>
<tr>
<td>1-3 courses</td>
<td>155 / 36.47%</td>
<td>160 / 34.63%</td>
<td>315 / 35.51%</td>
</tr>
<tr>
<td>4-7 courses</td>
<td>90 / 21.17%</td>
<td>100 / 21.64%</td>
<td>190 / 21.42%</td>
</tr>
<tr>
<td>8-10 courses</td>
<td>27 / 6.35%</td>
<td>55 / 11.9%</td>
<td>82 / 9.24%</td>
</tr>
<tr>
<td>10+ courses</td>
<td>33 / 7.76%</td>
<td>49 / 10.6%</td>
<td>82 / 9.24%</td>
</tr>
</tbody>
</table>

### 5 CONCLUSIONS

In asking the basic question, do asynchronous instructional formats enhance student learning, Andresen [2] found that they can. Gao, Zhang, and Franklin [8] argued that the design of the threaded discussion was critical because the design, or the format, facilitates dialogue, reflection, knowledge construction and self-assessment. This study looked at which formats for asynchronous discussions worked best for students. The authors found that students preferred discussions in which they could express an opinion, as in case studies – scenarios or examples posted by the instructor. Best practice then would point to using instructional tools, such as case studies, current events, or ethical dilemmas that require a higher level of critical thinking than traditionally required in less-challenging discussion threads.
Hew [3] focused on best practices in facilitating online discussions - peer or instructor. In the discussion of that study’s results, the author identified students’ desire to voice their own opinions and to control the direction of the discussion as one factor in choosing peer facilitation. Student preferences identified in this present study are analogous to those that Hew reported. In the current study, students stated a preference for discussion formats that allowed them to express an opinion about a particular scenario or example provided by the instructor, followed by formats that presented controversial issues or participation in role-plays as the basis for discussion.

Lai [6] provides an example of another best practice when developing online discussion assignments that foster critical thinking. In her study, a significant number of participants did do well, in the sense that they interacted with students in a way that demonstrated critical thinking skills. However, others did not. To address this, Lai proposed creating a rubric that would outline the expectations for the assignment that students could use in responding.

In this current study, researchers noted differences in the stated preferences from one study period, 2013-2014 to the next, 2015-2016 for threaded discussion formats as aids to learning course material. In the first, 26.36% of the students said that they thought all of the four formats – specific answer, opinion on a scenario/example, presentation of a controversial issue, and role-plays that required the student to make a decision - were “about the same.” In the 2015-2016 study, students chose the second discussion format, that is, discussion formats that allowed them to express an opinion about a particular scenario or example provided by the instructor.

Researchers looked at the participant profile for each study, thinking that they might offer some explanation. While there were differences, none were significant. It should be noted though that more than a quarter of the students in the combined sample said “I like them all the same.”

Andresen [2] remarked on the importance of instructor involvement in threaded discussions. Student responses to the open-ended question on the value of threaded discussions in this study reinforced Andresen’s point. One student commented, “It really depends on the professor and what kind of questions or prompts he/she is providing… It also depends on the content being discussed… It also is largely based on the work ethic of the people enrolled.”

There were no statistically significant differences found on the question of which format the student preferred based on gender, enrollment status, experience with online learning, or educational level. Arguably, since threaded discussion questions in each of the four formats prepared for the graduate courses would be more complex, they would be more likely to provide a forum for students to express their opinions. This could explain the preference for the second format, opinions on scenarios or examples provided by the instructor, found in the 2015-2016 study. The ratio of graduate to undergraduate students was closer in the second study (49% to 51%) than it was in the first study where students said that the formats were all about the same (35% to 65%).

One student summed up the dilemma well: “this survey will be difficult to analyze only because you must consider other information not questioned in the survey… If a student chooses a particular format… it is possible that they …[had] that format in all situations…or not at all….” Clearly, additional research is needed to establish how effectively one format compared with another resulted in enhanced student learning.

REFERENCES


