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Telepresence: Democratizing the Higher Education Classroom

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Introduction

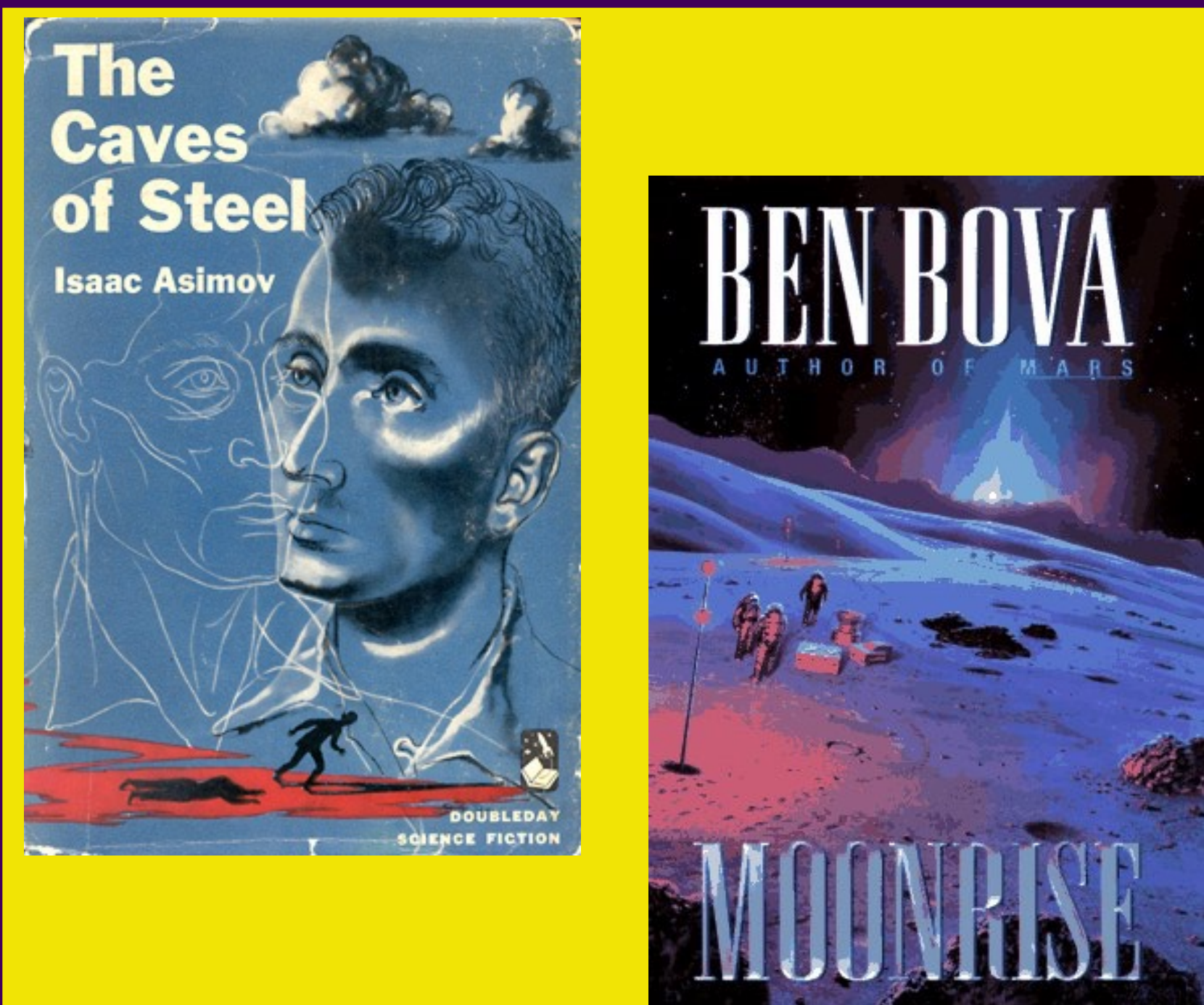


Figure 1: Harbingers of the future, novels such as *The Caves of Steel* by Isaac Asimov (1954) and *Moonrise* by Ben Bova (1996) predicted the ability to teach synchronously across vast geographic distances.

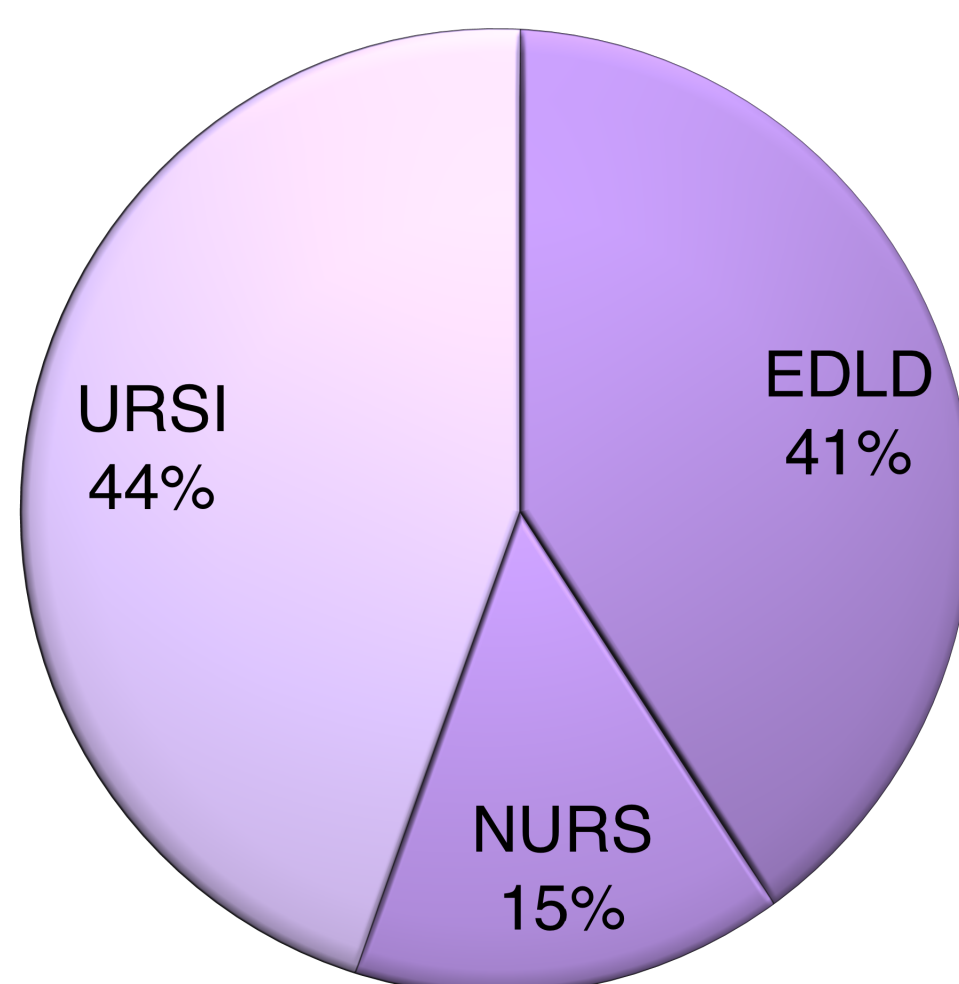
Driven by a confluence of changing socioeconomic and demographic conditions, American higher education is experiencing a growing disruption to the traditional model of classroom-based instruction. From the original correspondence courses of the 19th century to the MOOCs of the present, many colleges and universities have sought to utilize the technologies of their day to offer opportunities for asynchronous learning among an increasingly diverse student body. While potentially providing a quality education, such asynchronous approaches to the non-traditional classroom obviate the Socratic dialectic inherent to the more traditional classroom setting. Instead, telepresence offers a compelling alternative to this historic either-or dilemma.

By allowing a class to synchronously work face-to-face across two or more distributed sites, a professor may effectively engage in meaningful dialogue with students who are geographically disadvantaged.

Numerous academic departments at Minnesota State University, Mankato have begun to implement immersive telepresence technology into a range of undergraduate and graduate coursework in order to break down the geographic barriers that have historically separated more rural communities from advanced education.

Method

Department Membership



Student Status

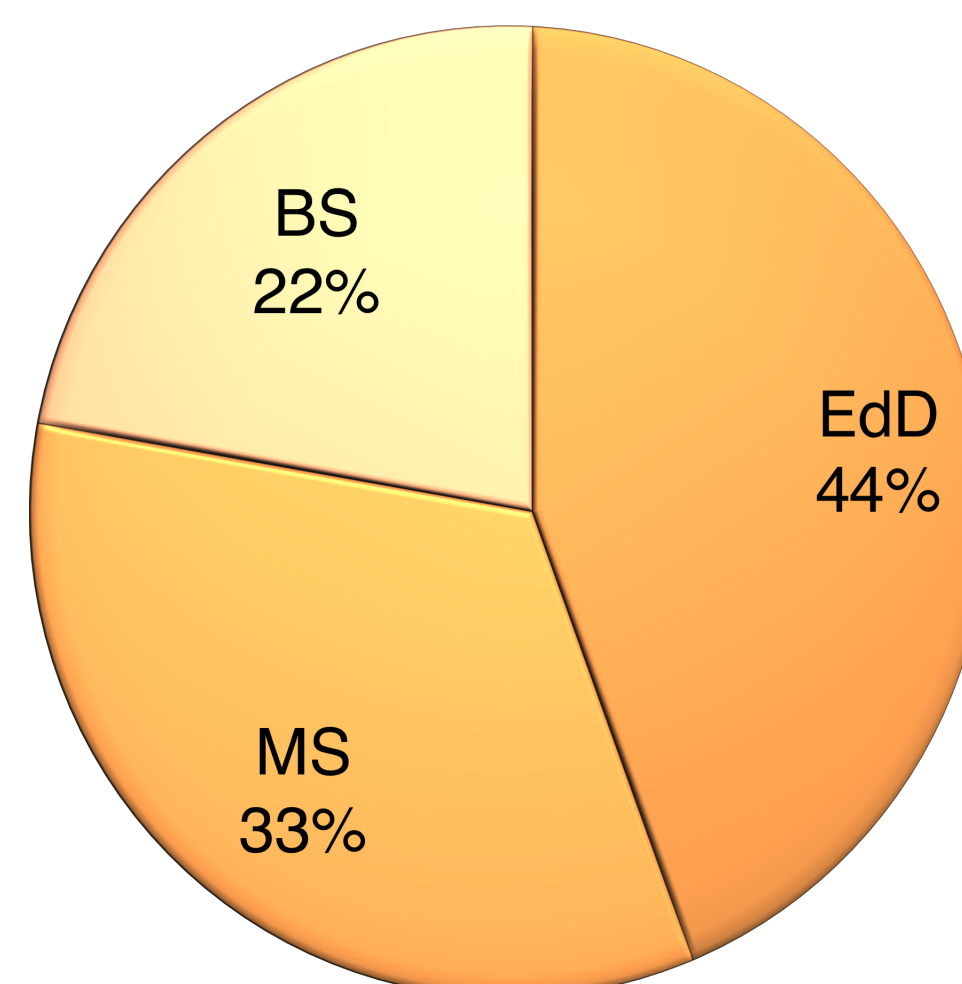


Figure 3: Demographic description of the sample ($n = 27$). Students were members of three departments: (a) educational leadership (EDLD), (b) nursing (NURS), and urban and regional studies (URSI). Students were pursuing a range of degrees: (a) bachelor of science (BS), master's of science (MS), or doctor of education (EdD).

Please indicate your response to each question below: Zero (0) is Strongly Disagree and five (5) is Strongly Agree :	0	1	2	3	4	5
I learned about the topics of study in my telepresence courses.						
I learned as much about the topics of study in my telepresence courses as I would have in more traditional courses.						
I was satisfied with the quality of communication in my telepresence courses.						
I think the quality of communication in my telepresence courses was equivalent to what I would have experienced in more traditional courses.						
I enjoyed the sense of community in my telepresence courses.						
I think the sense of community in my telepresence courses was equivalent to what I would have experienced in more traditional courses.						
I was comfortable with the technology in my telepresence courses.						
I was as comfortable with the technology in my telepresence courses as I would have been with the technology in more traditional courses.						
Overall, I was satisfied with my telepresence courses.						
Overall, I was as satisfied with my telepresence courses as I would have been with more traditional courses.						

Figure 2: Survey questions utilized to compare student perceptions of face-to-face versus telepresence courses across five areas of interest: (a) learning, (b) quality of communication, (c) sense of community, (d) comfort with technology, and (e) overall satisfaction.

Results

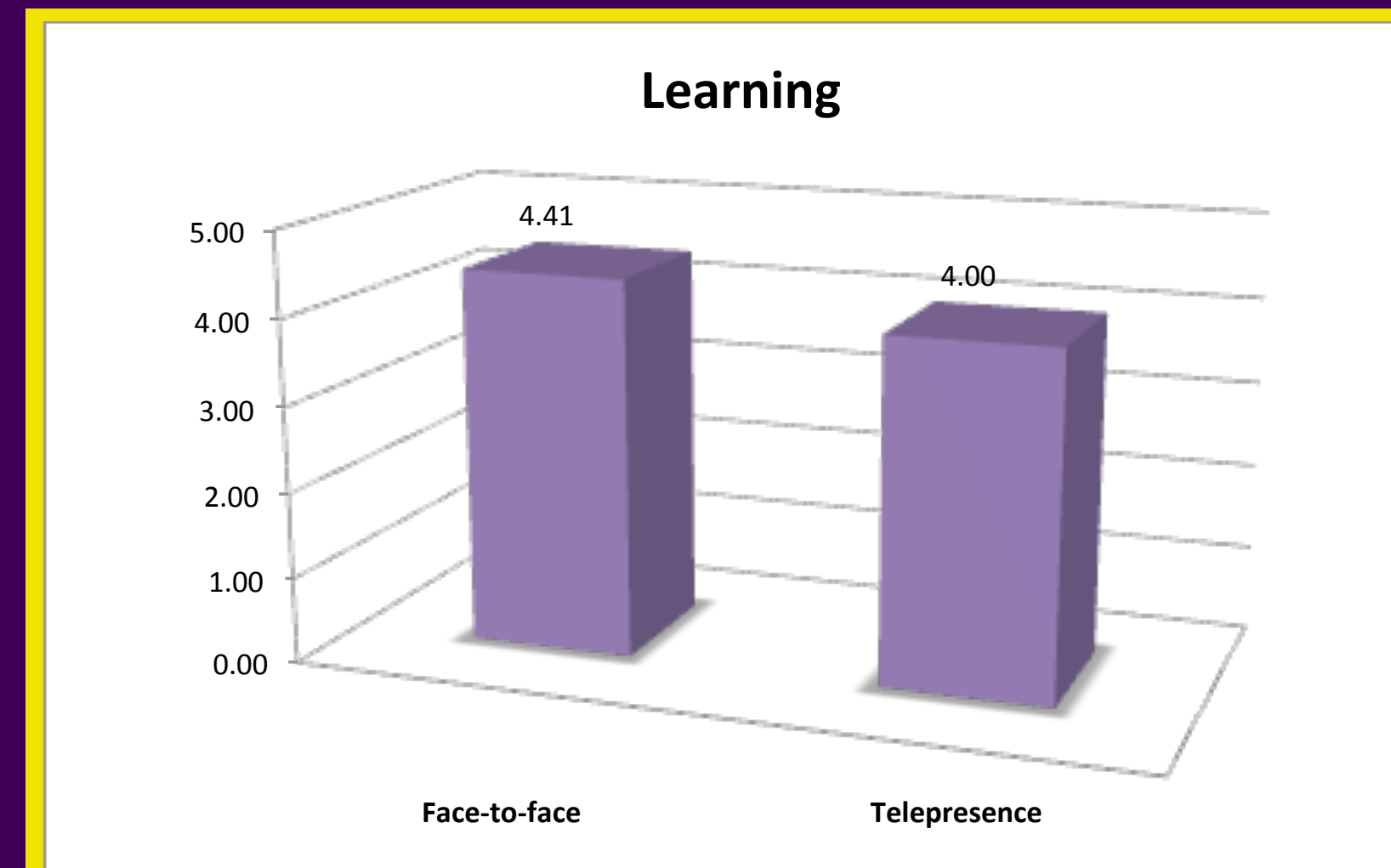


Figure 4: Difference in learning per student perceptions of face-to-face versus telepresence courses, $t(26) = 2.51, p < .02, d = .47$.

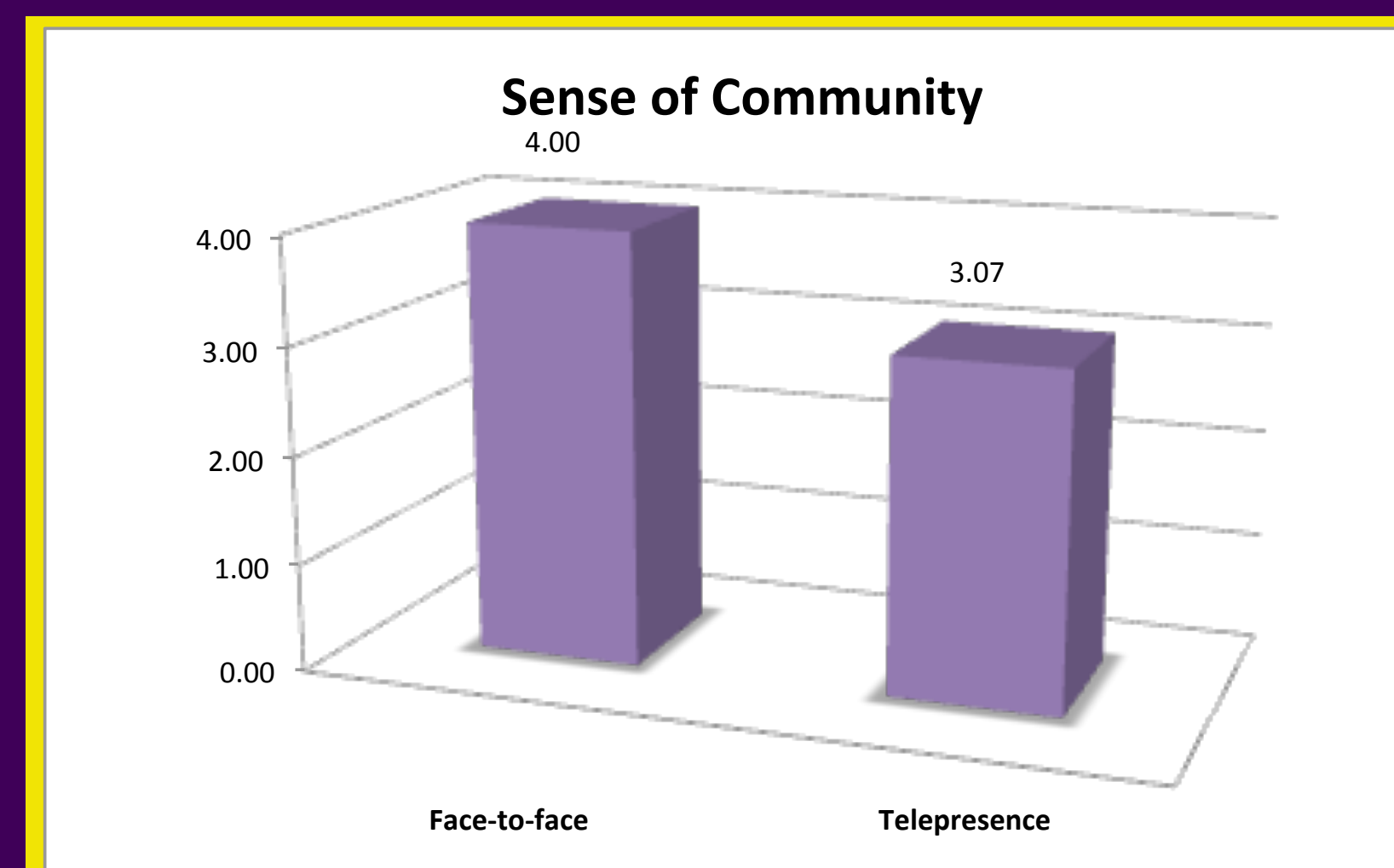


Figure 5: Difference in sense of community per student perceptions of face-to-face versus telepresence courses, $t(26) = 4.22, p < .0003, d = .74$.

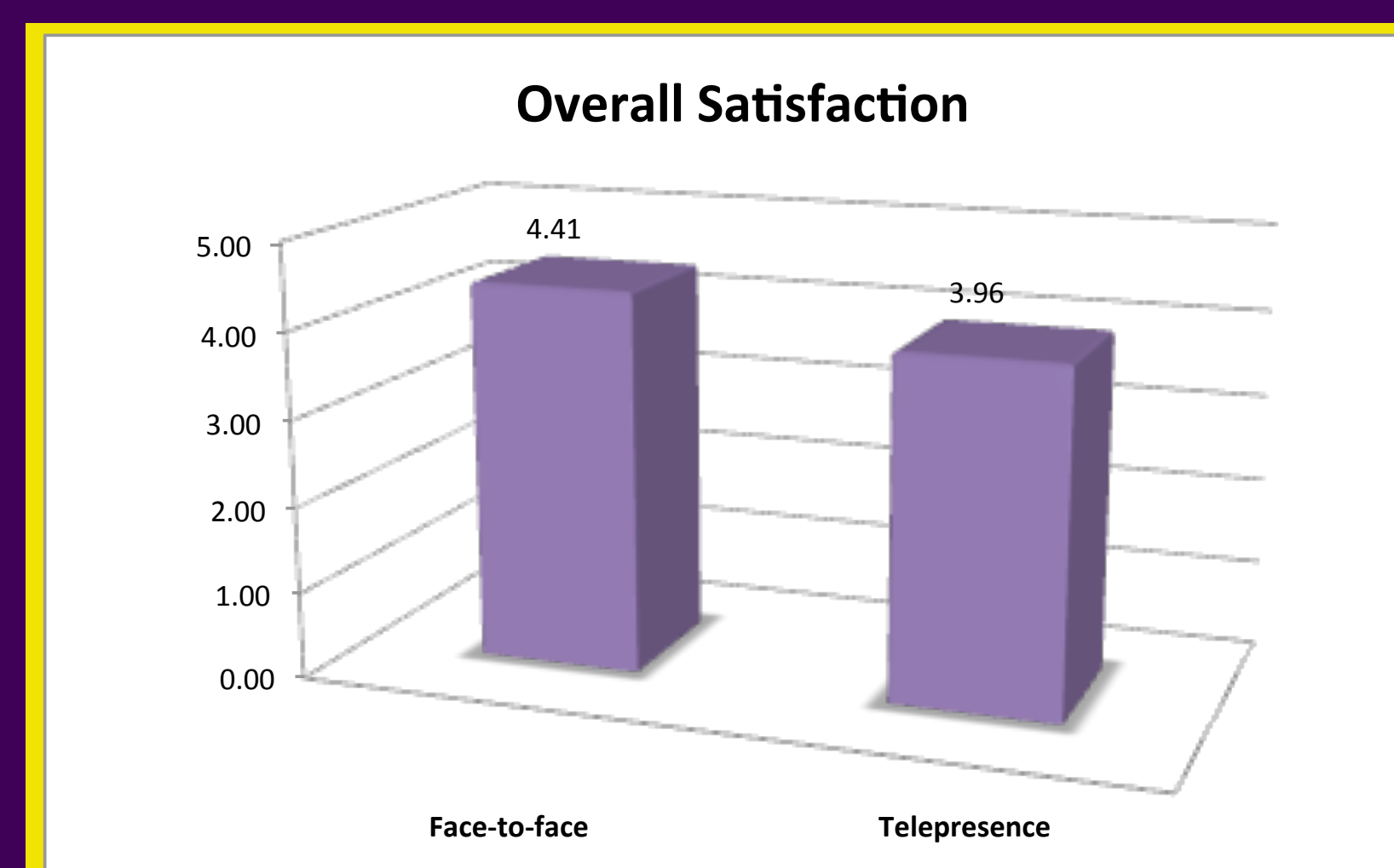


Figure 6: Difference in overall satisfaction per student perceptions of face-to-face versus telepresence courses, $t(26) = 3.61, p < .0013, d = .47$.

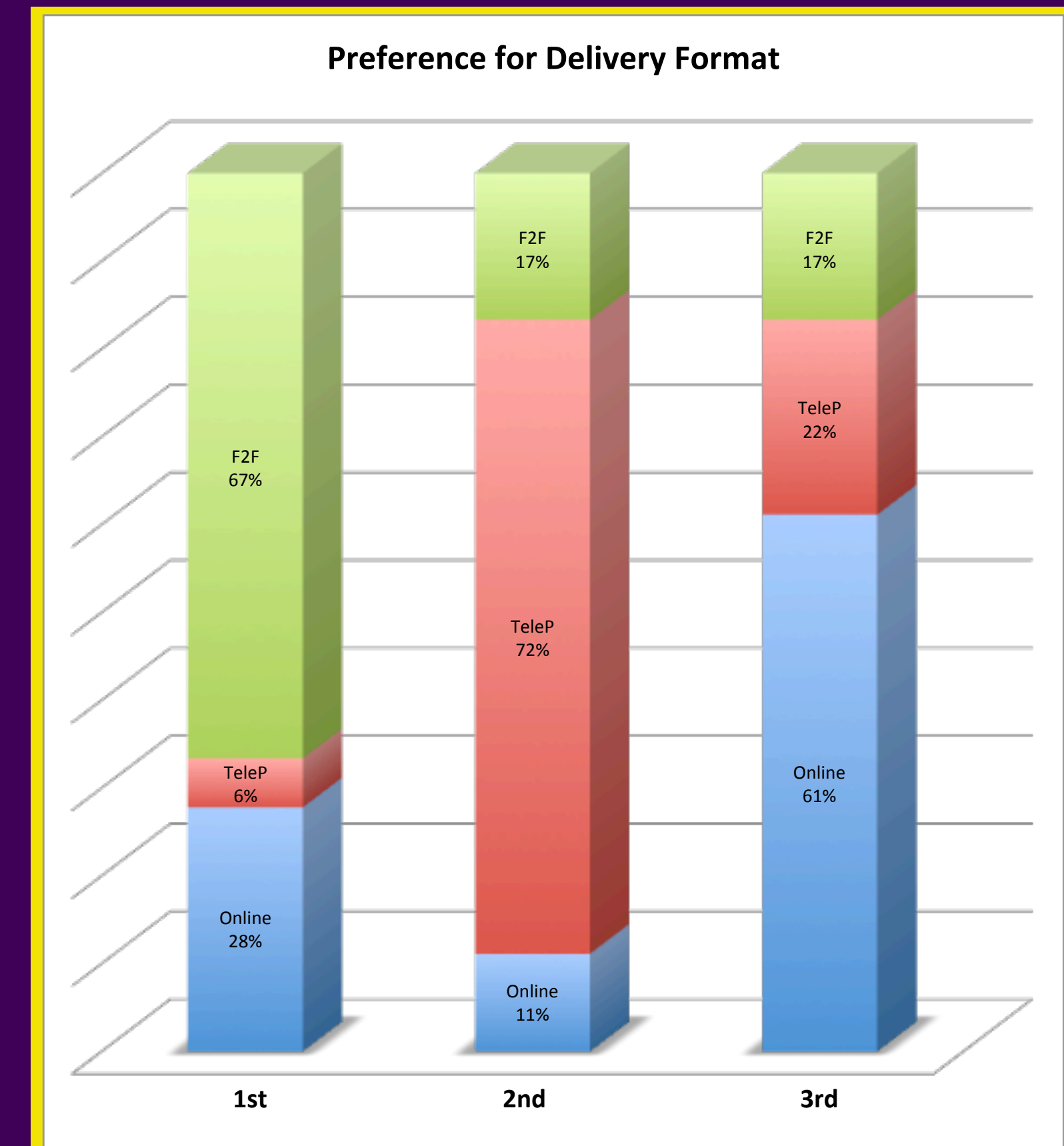


Figure 7: Rank order of student preferences for face-to-face (F2F), telepresence (TeleP), and online courses.

Nonsignificant Results:

Quality of Communication
 $t(26) = 1.10, p < .28, d = .17$

Comfort with Technology
 $t(26) = 1.56, p < .13, d = .33$