

Humber's Interactive Spaces (HIVES): Research Summary

In September, 2015, Humber deployed 13 new 'HIVES' (Humber's Interactive Spaces) learning spaces. Since the launch, the Centre for Teaching and Learning has been investigating the impact of these spaces, with respect to students' learning experiences, and faculty training, support, and teaching practices.

Research to Date:

Survey data: In Fall, 2015, and Winter, 2016, pre- and post-learning surveys, modified from the National Survey on Student Engagement (NSSE), were completed by 277 Humber students that had classes in the HIVES. During the same period, pre- and post-teaching surveys were completed by 51 Humber faculty that taught in the HIVES. Faculty surveys focused on teaching practices, support needs, and satisfaction in the new spaces.

HIVES Training and Support: In Fall, 2015, the number and nature of help requests to the on-site IT support person were recorded during the first three weeks of classes in the new spaces. From 2015 until today, the number of faculty that have attended training sessions and Community of Practice discussion groups related to the HIVES have been recorded.

HIVES versus Traditional Classroom Comparisons: Three sets of 'head-to-head' comparisons have been conducted, contrasting students from two sections of the same course with the same instructor, but where one section met in a traditional classroom and the other met in the HIVES. In each instance, surveys and classroom observations were conducted to compare students in each of the spaces. One of these comparisons was conducted by a faculty member, as a funded SoTL research project through Humber's "Teaching Innovation Fund".

Classroom Observation: An additional 12 hours of classroom observation have been conducted in the HIVES with a number of different Humber faculty, to gather direct measurements of behavior and engagement on the part of students and faculty alike.

Classroom Furniture Configuration: To determine the extent to which faculty have capitalized on the moveable furniture in the spaces, room configurations of the chairs and desks were recorded for 10 classrooms, a total of 52 times across the course of the Fall 2016 semester.

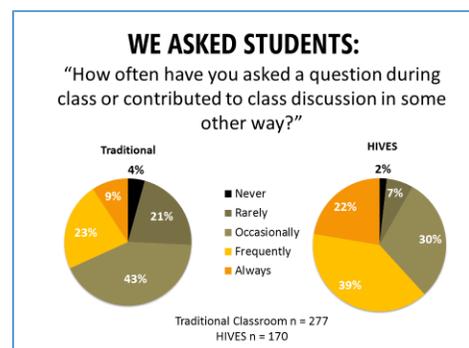
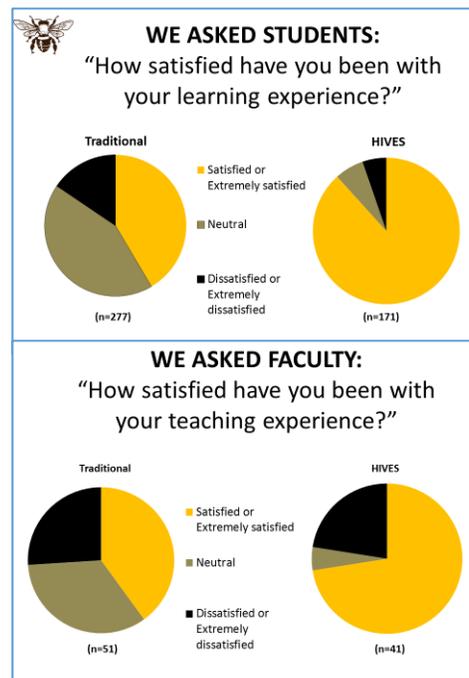
Main Findings:

Increased Satisfaction and Interactions

Across the board, students and faculty report significantly higher rates of satisfaction in the HIVES, as compared to traditional classrooms (see survey data, above). Students also consistently report **significantly more positive interactions** in the HIVES, both with one another, and with their professors. Specifically, whereas only **36%** of students in Traditional classrooms reported "Good" or "Very good" relationships with their peers, this figure jumped to **74%** in the HIVES.

Increased participation during class

The proportion of students that reported "frequently" or "always" contributing to class was also consistently higher in the HIVES spaces, compared to traditional classrooms (see survey data, right). This has been found repeatedly, in each of the head-to-head comparisons as well as in the student surveys.



Peer-to-peer Learning

Several measures indicate that students are taking a more active role in their learning in the HIVES spaces. **70%** of students surveyed agreed that their class in the HIVES **encouraged students to learn from one another**. Moreover, almost **two-thirds (62.9%) of students** agreed that their class in the HIVES promoted the development of a **sense of responsibility among students**. **64.3%** of students reported **asking a peer to help them understand course material** occasionally, frequently, or always, and **73.2%** **explained course material to classmates** that often.

Features of the Spaces

When asked about the aspects of the HIVES that contributed in a positive way to their learning experience, **75.4%** of students listed the **computer monitors around the room to broadcast their work**, followed closely by **whiteboards around the periphery (69.7%** of students listed these) and **moveable furniture (68.6%** of students listed these). When asked in an open-ended question what they liked about the HIVES spaces, the most common responses were about the available technology (71%), the opportunity for group work and interactivity (33%), and openness and space of the rooms (29%). Other comments included the sightlines of the computer monitors, the whiteboards for writing, and the furniture.

Faculty Teaching Practices in the Spaces

Faculty were asked about use of the spaces and their teaching practices within them. Whereas **Collaborative Learning** was reportedly used "Often" or "Always" by **68%** of faculty in traditional classrooms, this figure jumped to **82.9% in the HIVES**. Similarly, whereas only half of faculty (50%) reported using **Problem-based Learning** "Often" or "Always" in traditional classrooms, this rate increased to **63.4% in the HIVES**. Perhaps most importantly, **the number of faculty that reported spending more than 60% of their time lecturing during class decreased from 41.3% in traditional classrooms to only 14.3% in the HIVES**. This was strongly corroborated by classroom observation data, in which **lectures occurred during only 33.9% of the 12 hours of observation time**.

Faculty Use of Spaces

When asked about the aspects of the HIVES that they used regularly, **87.9%** of faculty reported using the **whiteboards that surround the periphery of the room**. Other commonly used features include the **moveable furniture (70.7%** used regularly), **computer monitors** around the periphery (**67.2%** used regularly), and the **interactive touchscreen (60.3%** used regularly). When asked which of these was the *most* useful, **43.6%** of faculty listed the **whiteboards**, and **23.6%** listed the **computer monitors**. Based on the classroom configuration recordings, desks had been moved into different formations in 6% of 520 observations.

Faculty Training and Support

Since launching the HIVES in Fall, 2015, **139 Humber faculty** have attended the Centre for Teaching and Learning's HIVES-related training initiatives. **78.2%** of faculty reported feeling sufficiently supported in terms of their use of technology in the spaces. The on-site technician that was available during the first three weeks of the first semester in the HIVES responded to a total of **136 help requests**; the majority of these were during the week before classes began, although there were **48 requests** during the first week of class.

Future Directions:

In the Fall of 2017, a series of focus groups are planned, involving faculty and students. Those with faculty will focus on the extent to which teaching practices have changed in the new spaces; those with students will focus on what the learning experience is like in the new spaces, and how spaces might yet be improved. One area of particular emphasis will involve International Students' experiences. In addition, the Centre for Teaching and Learning is looking at additional ways to inspire faculty to re-configure their classrooms to align with their innovative teaching approaches, and will document the impact of these initiatives.

These data have been shared within the Humber community but also beyond: Humber has hosted several tours of the HIVES with provincial partners from the Elementary, Secondary, and Post-secondary sectors, as well as with International guests from the United States and Indonesia. Portions of these results have also been presented at the Society for Teaching and Learning in Higher Education's (STLHE) annual conference and at the League for Innovation in the Community College's annual "Innovations" conference. They will also be included in a series of scholarly publications in the coming year.