Humber Math Centre SIRF Summary Report

March 1st, 2016

Introduction to the Centre

Humber has developed a free drop-in Math Centre to provide math support to all Humber and University of Guelph-Humber full-time and part-time students, no appointment necessary. The centre has a simple login system which tracks student course information, allowing the centre to conduct statistical analysis on the types and numbers of students who come to the centre. Upon entering the centre and logging in, all the student is required to do is seat themselves and raise their hand when they require assistance. The Math Centre tutors can help with all levels of mathematics courses as well as courses with embedded math such as physics, nursing, coding, and chemistry. The staff is composed of friendly and knowledgeable University of Waterloo co-ops as well as full-time and part-time Humber students.

Methods of Analysis

The central objective of this study was to qualitatively and quantitatively assess the learner-support model currently implemented by the Humber Math Centre in order to demonstrate whether or not this model is achieving student needs.

A random sample of 240 students completed a survey on the Math Centre in the Fall 2014 semester as part of the project “Successful Strategies for Learning Centres”. Along with historical data, the data collected by the survey was used to develop a picture of student engagement with and awareness of the Humber Math Centre. This data has been analysed in multiple Humber Math Centre reports (See all references) written by University of Waterloo Math Centre Co-ops, providing a more accurate picture of the successful aspects of the centre.

Results

A major result from the sign in data collected was the discovery that term to term (Fall 2013, Winter 2014, Fall 2014), Humber and Guelph-Humber students spent approximately 3560, 2640, and 3360 hours within the centre respectively. Data collection and analysis from our login system found student visits were more frequent during Weeks 5, 8, 10 and 13 through 14 in the Fall terms, as well as Weeks 8 and 14 in the Winter. It has been found that more often than not that these weeks correspond to Humber or Guelph-Humber testing weeks.

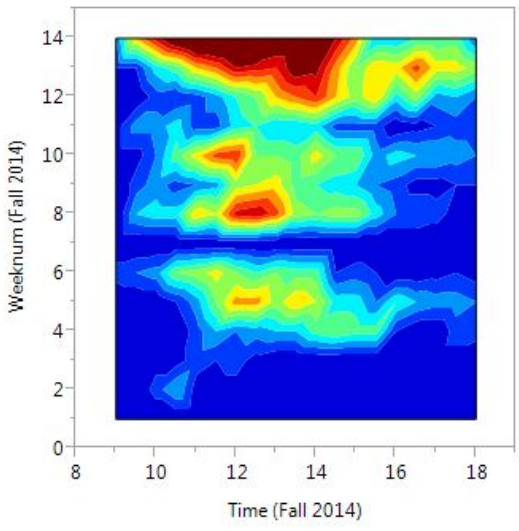

Figure 1 - Week Versus Student Density

This can be confirmed by the heat plot shown as Figure 1, in addition to the plot on weekly student hours seen as Figure 2, which show significant increase in student volume and time spent within the Humber Math Centre during the weeks stated above.

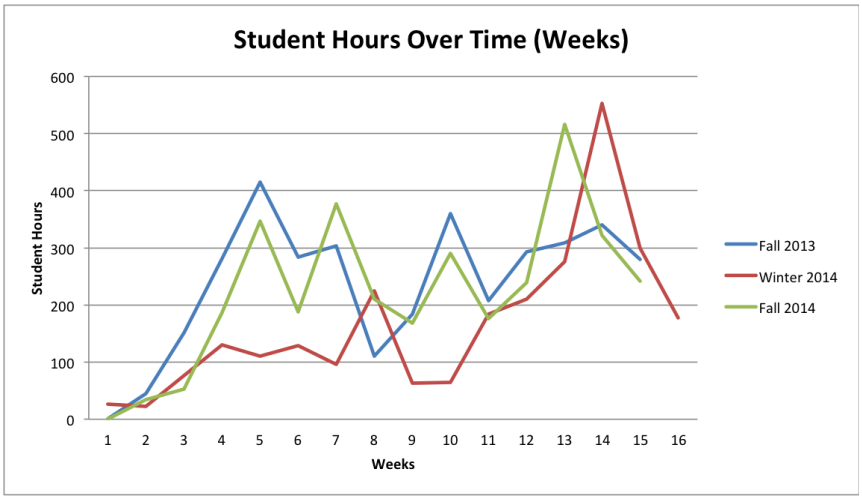

Figure 2 - Student Hours Over Time

In addition to this, a report by (Hamilton, 2015) concluded that students generally had low confidence in their mathematics abilities before attending the Humber Math Centre, but following a visit to the centre most students responded that their mathematical confidence greatly improved. While the majority of respondents did not find math difficult prior to attending college, 95% of students in programs with math at Humber and Guelph-Humber found that support from the Math Centre helped them pass their math related courses, in addition to 89% of students stating that their confidence levels improved after visiting the centre as seen in the Figure 3 (Hamilton, 2015). While student confidence before attending the centre is lower, the report does find that the majority of students believe they are able to do well in mathematics and mathematics related courses, as well as that the Math Centre is valuable to their education. The conclusions of this report about student opinions of the Math Centre were further solidified by the report *Analysis of Mathematical Confidence based on Attendance at the Humber Math Centre Fall 2014*. Overall, both reports confirmed one of the major objectives of the centre to be fact: Students are confident in their math ability, however, students who have visited the Math Centre are on average more confident than those who have not visited and used the available resources.

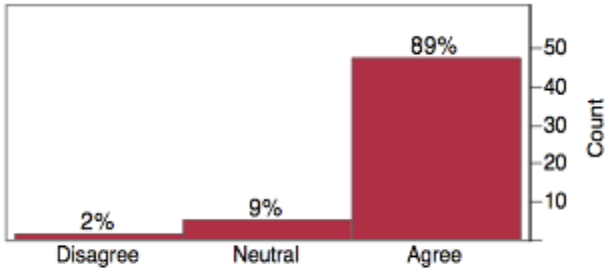

Figure 3 - Confidence After Support

As an additional result of the collected data, an interesting picture of student demographics has been developed. In general, students who use the Humber Math Centre

come from a variety of programs, with majority of students entering the centre coming from Applied Technology and Business programs. Thespread of student across the different programs is illustrated in Figure 4. From this we can clearly see that the Applied Technology programs contribute a significant portion of our student volume. This is supported by several reports, indicating that it is extremely important that the Humber Math Centre continue to be involved with Technical Math courses and provide support for any advanced mathematics in them (Huang, 2014).

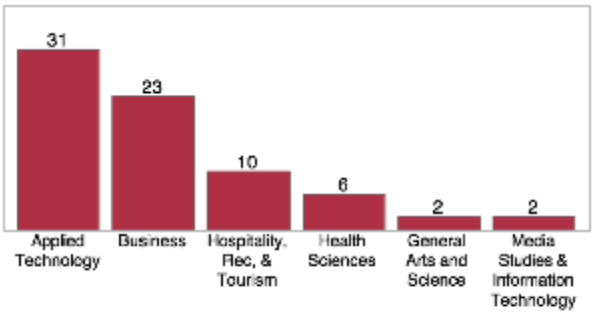

Figure 4 - Math Centre Demographics

Just as well, we saw a highly diverse range of student levels of study. These ranged from apprenticeship, diploma, degree, and postgraduate degree levels. Thus, it is encouraged that the Math Centre continue to hire tutors with advanced mathematics skills in order to cope with the varying levels of Mathematics help required.

By analyzing additional survey data, multiple reports effectively demonstrated that there are correlations between student awareness of the math centre and the number of visits to the centre. While not all methods of Math Centre advertising showed this direct correlation, those with increasingly large data points followed the correlation in a more precise manner. Additionally, it has been identified that the most effective forms of Math Centre advertising are those which involve lecturers, fellow students, and other events such as the Humber orientation. This information was noticeably different from previous surveys conducted, allowing the Math Centre to identify and adjust focus and dedicated time to alternate methods of advertising.

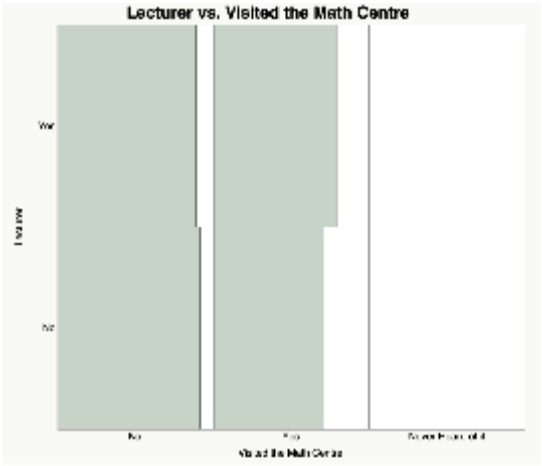

Figure 5 - Lecturer vs Math Centre Visits

This analysis suggests that the focus for advertising methods be shifted slightly to put greater importance on interacting with mathematics and mathematics related lecturers at Humber College.

Additionally, particular event which was not surveyed for would be the games and movie nights hosted by the Humber Math Centre. Considering the extent to which the students who have previously visited the centre and how this can influence the future number of visits (Fellow Students being one of the leading sources of knowledge of our centre), hosting social events such as the ones described above can generate a student-friendly atmosphere for centre.

Discussion and Recommendations

From this environmental scan several recommendations have been put forward. One of the most commonly recommended practices is an increase in advertisement of the Humber Math Centre. These include continuing to reach out to students and faculty to inform and connect them to the Math Centre, better marketing of the available resources within the Math Centre, and increasing contact with the student population outside the Math Centre and beyond the conventional hours of operation using mobile resources and online technology (Hamilton, 2015). Students should be aware that the Math Centre offers access to one-on-one tutoring, online tutoring, textbooks, worksheets and formula sheets. The Math Centre is encouraged to continue moving their services outside of the Math Centre by visiting students in various study locations across campus to offer help (Huang, 2014). The Math Centre should also continue promoting its services by making video testimonies about students' experience at the Math Centre in order to increase student attendance.

An individual report also suggested that "in the long run, we should even consider opening the Math Centre for longer hours than what it is currently, as the demand for tutoring seems to support it" (Keah, 2014). A possible solution to this problem may be to extend Humber Math Centre hours during weeks with projected increases in student volume and time spent in the centre. Funding the development of a local statistics software capable of forecasting this sort of data may help to make and increase accuracy of these predictions.

References

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