

A STUDY OF THE IMPACT OF STUDIOSTY ON CURTIN UNIVERSITY STUDENTS IN 2019

PREPARED BY CLAIRE HULCUP, AUGUST 2020

1. Use of the service

In 2019 Studiosity was made available to Curtin University first year, second year and postgraduate students through their unit (and HDR) Blackboard pages. The service was accessed 11153 times by a total of 3108 different students through 647 different Blackboard pages, with use of the Writing Feedback and Connect Live services as follows:

	Times used	Number of users
Writing Feedback	10037	2895
Connect Live	1116	478

Each service was accessed anywhere between one and 20 times by individual students, with usage figures as illustrated in the following graphs:

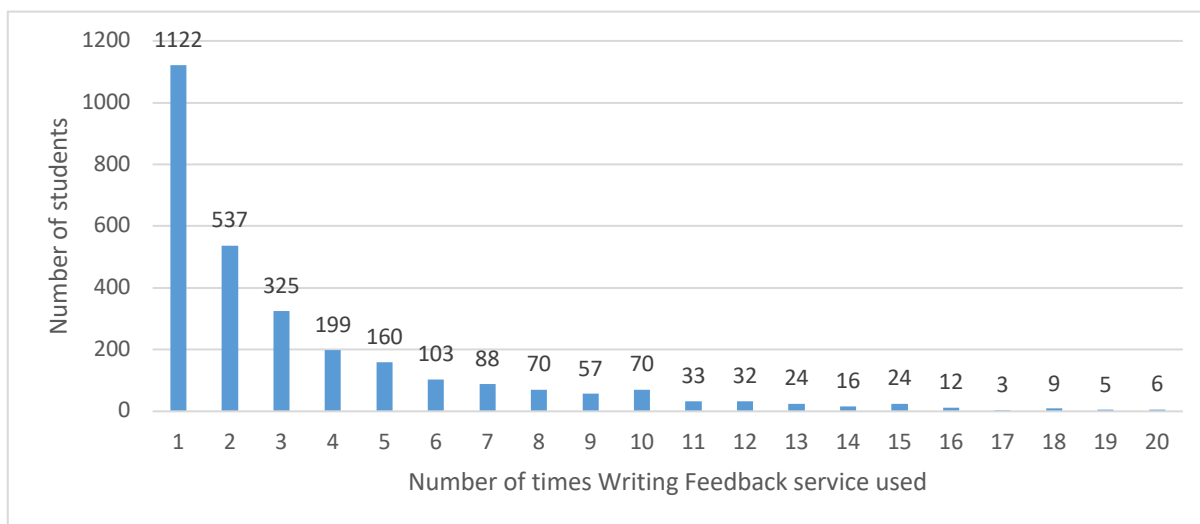


Figure 1: Writing Feedback usage

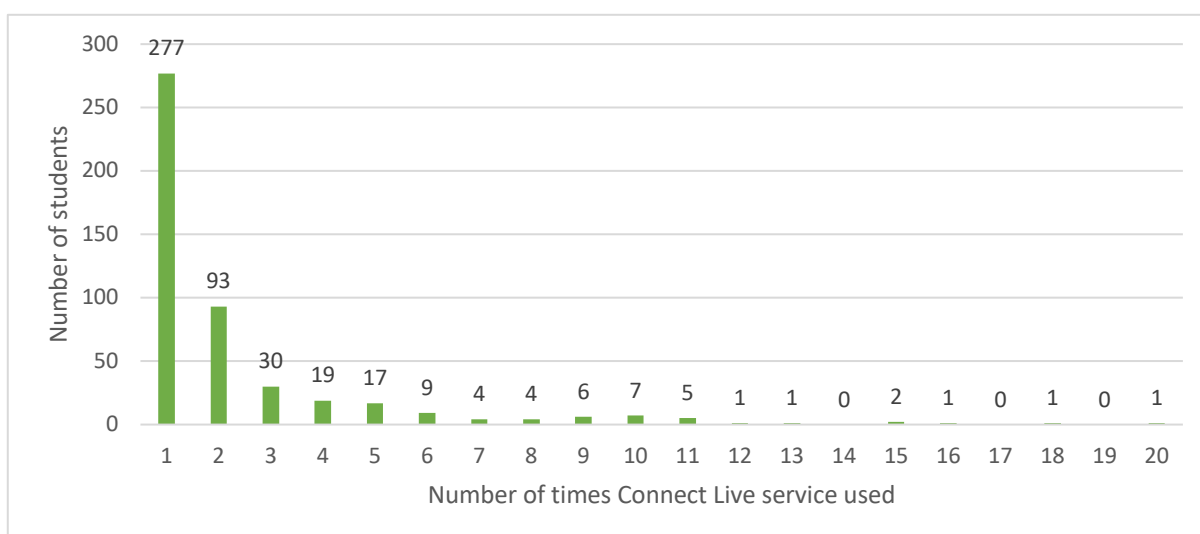


Figure 2: Connect Live usage

2. Impact of the service – random sample of students

In order to measure the impact of Studiosity on student performance and retention in 2019, a random sample of 40 units was selected from the 647 units with Studiosity access. Data was then obtained for all students enrolled in any study period and any study mode for these 40 units in 2019, and the resulting sample size was 5421 students. Of these, 927 (17.1%) used Studiosity at some point during 2019 (either for one of the 40 units or for another unit), while 4494 (82.9%) did not. The demographics of the sample were as follows:

	Total	Used Studiosity	Didn't use Studiosity
Equity students	1105	200 (18.10%)	905 (81.90%)
International students	753	182 (24.17%)	571 (75.83%)
Low SES students	607	117 (19.28%)	490 (80.72%)
Aboriginal or TSI students	56	7 (12.5%)	49 (87.5%)
OUA students	618	86 (13.92%)	532 (86.08%)
Internal students	4588	793 (17.28%)	3795 (82.72%)
External and online students	833	134 (16.09%)	699 (83.91%)
Bentley campus students	4792	837 (17.47%)	3955 (82.53%)
Non-Bentley campus students	629	90 (14.31%)	539 (85.69%)

Findings obtained using this sample of students are detailed in the following sections.

2.1 Course weighted averages

Of the 5421 students in the sample, 71 did not have a course weighted average (CWA) and so were removed from this part of the analysis. Of the remaining 5350 students, 926 (17.3%) used Studiosity at some point during 2019, while 4424 (82.7%) did not. The table below displays key descriptive statistics for the CWAs of each group of students:

	Mean	Median	Standard deviation	Interquartile Range
Used Studiosity	69.64	70.88	9.54	12.08
Didn't use Studiosity	64.86	66.92	13.51	13.68

As evidenced from the table, both the mean and median CWAs were higher for students who used Studiosity compared to those who did not (the median being the more appropriate statistic in this case due to the negatively skewed data). Furthermore, the variation in CWAs was smaller for those who used the service compared to those who did not. The following pair of box plots illustrates the differences in the distribution of CWAs for the two groups of students:

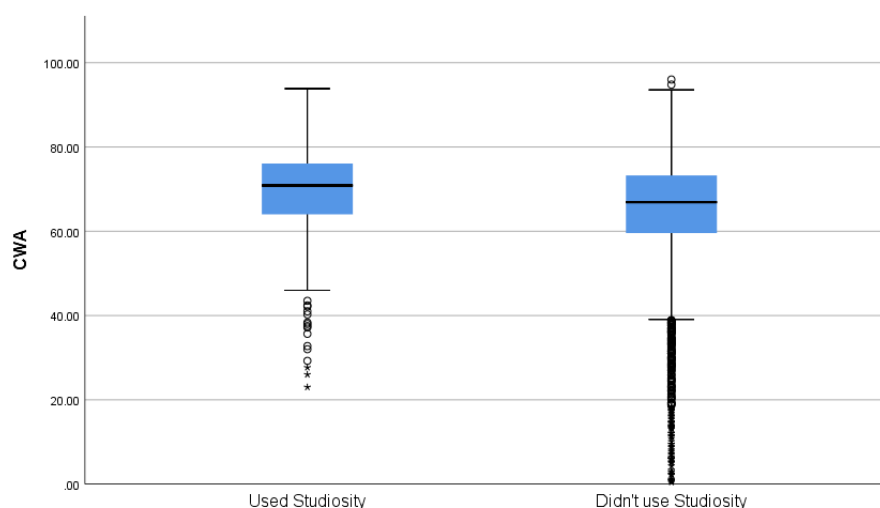


Figure 3: Comparison of the CWAs of students who did and didn't use Studiosity

In order to determine whether the difference in CWAs was statistically significant, the skewed data was transformed by squaring and an independent samples *t*-test was then conducted. This test indicated that the increase in CWAs for students who used Studiosity compared to those who didn't was statistically significant ($p < .001$).

The same analysis was also done for the groups of students detailed above, with results as follows:

	Mean		Median		<i>p</i> value
	Used	Didn't use	Used	Didn't use	
Equity students (n = 1094)	70.87	64.33	72.16	66.03	< .001**
International students (n = 752)	68.23	62.90	68.88	64.13	< .001**
Low SES students (n = 598)	67.97	63.28	71.09	65.33	.001**
Aboriginal or TSI students (n = 55)	66.80	56.47	73.53	60.94	.095
OUA students (n = 592)	67.08	63.75	68.83	66.59	.049*
Internal students (n = 4550)	69.80	65.03	70.98	67.00	< .001**
External and online students (n = 800)	68.68	64.02	70.44	66.59	< .001**
Bentley campus students (n = 4747)	69.88	64.98	71.07	66.92	< .001**
Non-Bentley campus students (n = 603)	67.40	64.09	69.10	66.80	.044*

*Independent samples *t*-test on transformed data statistically significant at the .05 level

**Independent samples *t*-test on transformed data statistically significant at the .01 level

2.2 Retention

Analysis of the sample of 5421 students showed that 90.9% of the 927 students who used Studiosity in 2019 either completed their degree at some point in 2019 or 2020 or re-enrolled in 2020, compared to 85.6% of the 4494 students who didn't use Studiosity in 2019. Pearson's chi-square test indicated that the association between using Studiosity and completing or re-enrolling was statistically significant ($p = < .001$), and that students who used Studiosity were significantly more likely to complete or re-enrol than those who didn't. The differences between the two groups are illustrated below:

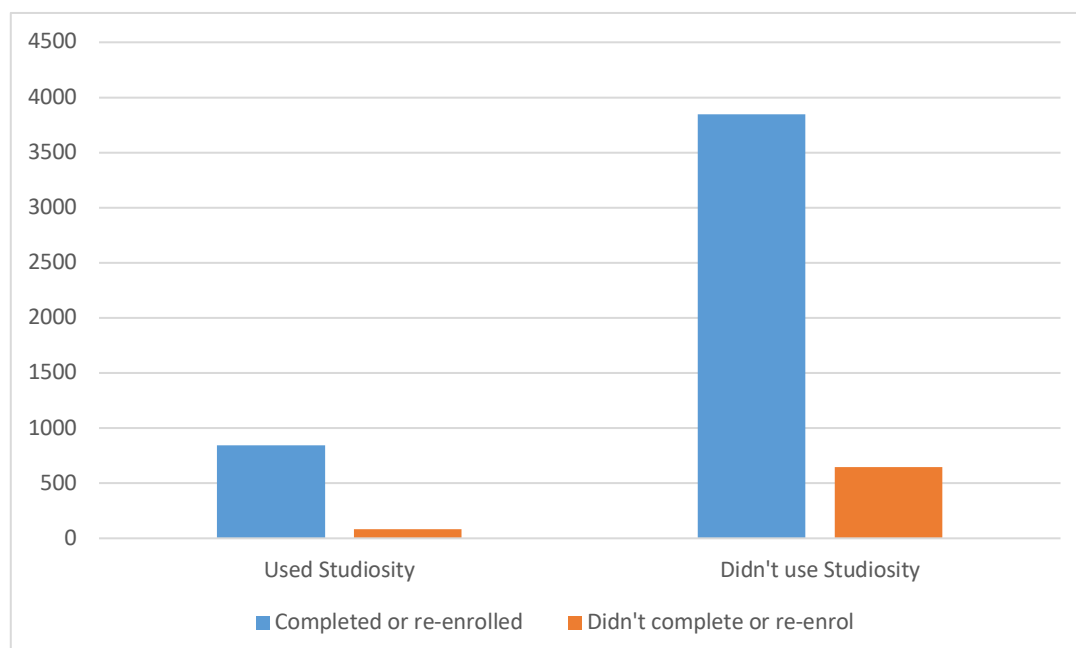


Figure 4: Completion/re-enrolment totals for students who did and didn't use Studiosity

2.3 Unit marks and unit status

For this part of the analysis, the unit marks and unit status of students who accessed Studiosity through the corresponding unit Blackboard page were compared with the unit marks and unit status of students who did not (even if they did access Studiosity through the Blackboard page of another unit or units).

2.3.1 Unit marks

Of the 5421 students in the sample, 233 withdrew from their unit, 7 were still enrolled and 36 students in one unit did not receive a unit mark, so all were removed from this part of the analysis. Of the remaining 5145 students, 231 (4.5%) used Studiosity in the relevant unit at some point during 2019, while 4914 (95.5%) did not. The table below displays key descriptive statistics for the unit marks of each group of students (note that in instances where the sample contained multiple unit marks for the same student, the marks were averaged to ensure one mark per student):

	Mean	Median	Standard deviation	Interquartile Range
Used Studiosity in unit	67.70	69.00	13.22	17.00
Didn't use Studiosity in unit	66.07	68.00	16.98	16.00

As evidenced from the table, both the mean and median unit marks were higher for students who used Studiosity compared to those who did not (the median being the more appropriate statistic in this case due to the negatively skewed data). The following pair of box plots displays the distribution of unit marks for the two groups of students:

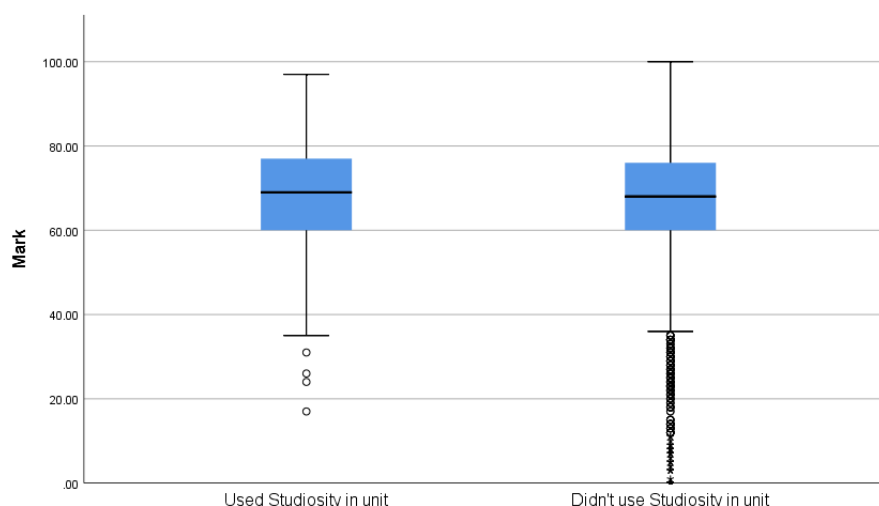


Figure 5: Comparison of the unit marks of students who did and didn't use Studiosity in their unit

In order to determine whether the difference in unit marks was statistically significant, the skewed data was transformed by squaring and an independent samples *t*-test was then conducted. This test indicated that the increase in unit marks for students who used Studiosity in their unit compared to those who didn't was not statistically significant ($p = .405$).

2.3.2 Unit status

Of the 5421 students in the sample, 7 were still enrolled in their unit and so were removed from this part of the analysis. Of the remaining 5414 students, 93.6% of the 234 students who used Studiosity in their unit passed, as compared to 86.2% of the 5180 students who didn't use Studiosity. Pearson's chi-square test indicated that the association between using Studiosity in a unit and passing the unit was statistically significant ($p = .001$), and that students who used Studiosity in a unit were significantly more likely to pass.

When the 233 students who withdrew from their unit were also excluded from the analysis, 93.6% of the 234 students who used Studiosity in their unit passed, as compared to 90.2% of the 4947 students who didn't use Studiosity. Pearson's chi-square test indicated that the association in this instance was not statistically significant ($p = .087$).

3. Impact of the service – case study of three units

In addition to the above analysis, users from three units with large Studiosity usage in 2019 were analysed separately as detailed below (note that these three groups of users are considered the population of students studying the particular unit in 2019, rather than as random samples of students who had access to Studiosity, and therefore p values have not been obtained).

3.1 Foundations of Professional Health Practice students

There were 2869 students enrolled in all study modes and study periods of Foundations of Professional Health Practice (CMHL1000) in 2019. Of these, 915 (31.9%) used Studiosity at some point during 2019 (either for CMHL1000 or for another unit), while 1954 (68.1%) did not. Findings obtained using this population of students are detailed in the following sections.

3.1.1 Course weighted averages

Of the 2869 students enrolled in CMHL1000, 82 did not have a course weighted average (CWA) and so were removed from this part of the analysis. Of the remaining 2787 students, 911 (32.7%) used Studiosity at some point during 2019, while 1876 (67.3%) did not. The table below displays key descriptive statistics for the CWAs of each group of students:

	Mean	Median	Standard deviation	Interquartile Range
Used Studiosity	69.89	71.57	10.31	13.27
Didn't use Studiosity	61.35	64.68	16.01	16.49

As evidenced from the table, both the mean and median CWAs were higher for students who used Studiosity compared to those who did not (the median being the more appropriate statistic in this case due to the negatively skewed data). Furthermore, the variation in CWAs was smaller for those who used the service compared to those who did not. The following pair of box plots illustrates the differences in the distribution of CWAs for the two groups of students:

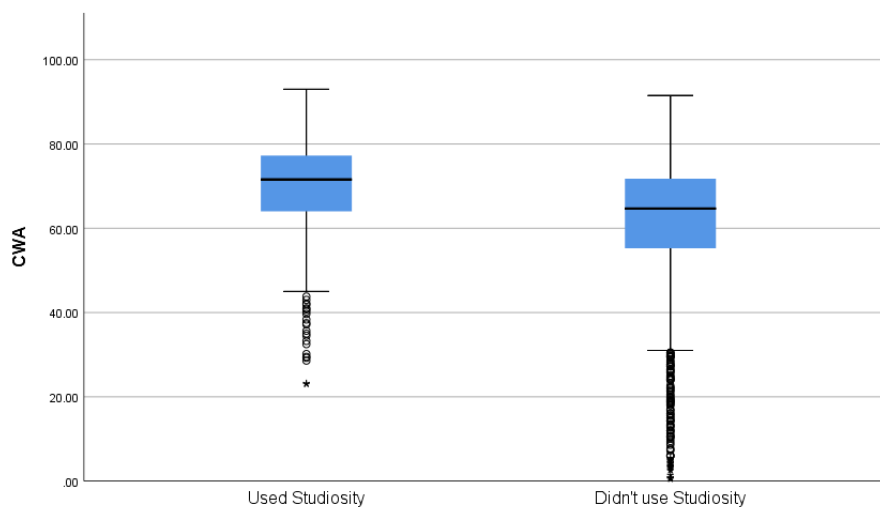


Figure 6: Comparison of the CWAs of students who did and didn't use Studiosity

3.1.2 Retention

Analysis of the population of 2869 students showed that 87.3% of the 915 students who used Studiosity in 2019 either completed their degree at some point in 2019 or 2020 or re-enrolled in 2020, compared to 79.2% of the 1954 students who didn't use Studiosity in 2019. The differences between the two groups are illustrated below:

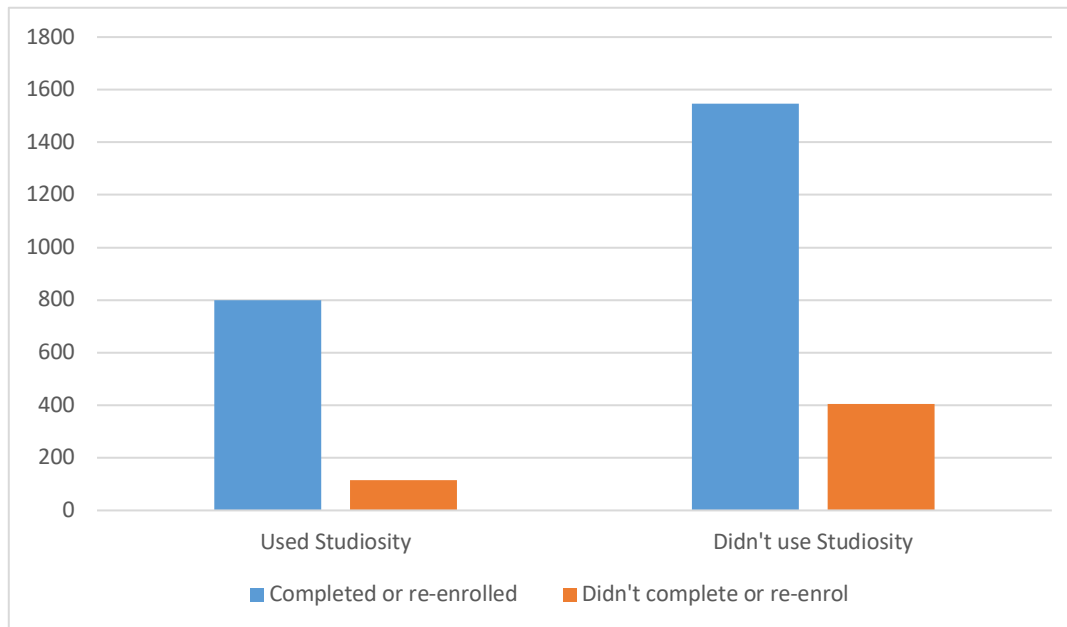


Figure 7: Completion/re-enrolment totals for students who did and didn't use Studiosity

3.1.3 Unit marks and unit status

For this part of the analysis, the unit marks and unit status of students who accessed Studiosity through the CMHL1000 Blackboard page were compared with the unit marks and unit status of students who did not (even if they did access Studiosity through the Blackboard page of another unit or units).

Of the 2869 students enrolled in CMHL1000, 188 withdrew from the unit so were removed from this part of the analysis. Of the remaining 2681 students, 833 (31.1%) used Studiosity in CMHL1000 at some point during 2019, while 1848 (68.9%) did not. The table below displays key descriptive statistics for the unit marks of each group of students (note that in instances where there were multiple unit marks for the same student, the marks were averaged to ensure one mark per student):

	Mean	Median	Standard deviation	Interquartile Range
Used Studiosity in unit	67.77	69.00	11.06	15.00
Didn't use Studiosity in unit	59.06	63.00	17.65	18.00

As evidenced from the table, both the mean and median unit marks were higher for students who used Studiosity compared to those who did not (the median being the more appropriate statistic in this case due to the negatively skewed data). Furthermore, the variation in unit marks was smaller for those who used the service compared to those who did not.

The following pair of box plots displays the distribution of unit marks for the two groups of students:

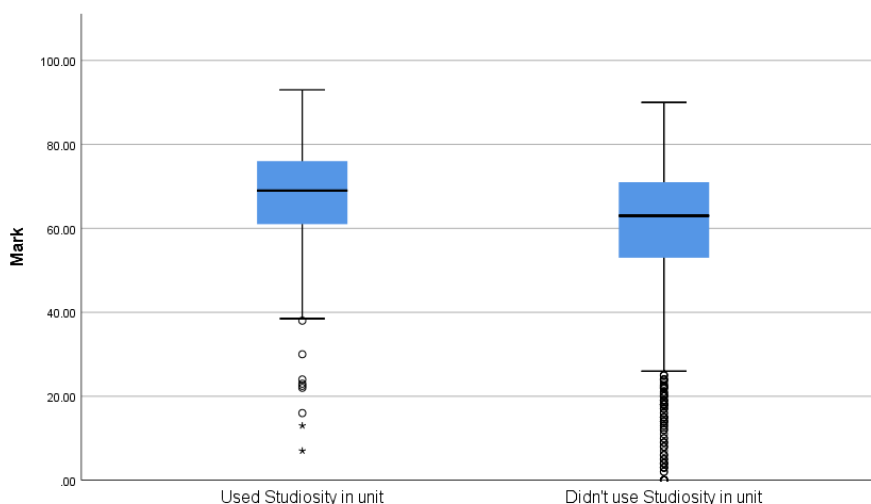


Figure 8: Comparison of the unit marks of students who did and didn't use Studiosity in their unit

Furthermore, of the 2869 students enrolled in CMHL1000, 94.3% of the 840 students who used Studiosity in their unit passed, as compared to 74.7% of the 2029 students who didn't use Studiosity. When the 188 students who withdrew from their unit were also excluded from the analysis, 95.1% of the 833 students who used Studiosity in their unit passed, as compared to 82.0% of the 1848 students who didn't use Studiosity.

3.2 Indigenous Cultures and Health Behaviours students

There were 2381 students enrolled in all study modes and study periods of Indigenous Cultures and Health Behaviours (INDH1006) in 2019. Of these, 782 (32.8%) used Studiosity at some point during 2019 (either for INDH1006 or for another unit), while 1599 (67.2%) did not. Findings obtained using this population of students are detailed in the following sections.

3.2.1 Course weighted averages

Of the 2381 students enrolled in INDH1006, 6 did not have a course weighted average (CWA) and so were removed from this part of the analysis. Of the remaining 2375 students, 781 (32.9%) used Studiosity at some point during 2019, while 1594 (67.1%) did not. The table below displays key descriptive statistics for the CWAs of each group of students:

	Mean	Median	Standard deviation	Interquartile Range
Used Studiosity	71.25	72.25	8.62	11.85
Didn't use Studiosity	65.74	67.13	11.47	13.07

As evidenced from the table, both the mean and median CWAs were higher for students who used Studiosity compared to those who did not (the median being the more appropriate statistic in this case due to the negatively skewed data). Furthermore, the variation in CWAs was smaller for those who used the service compared to those who did not.

The following pair of box plots illustrates the differences in the distribution of CWAs for the two groups of students:

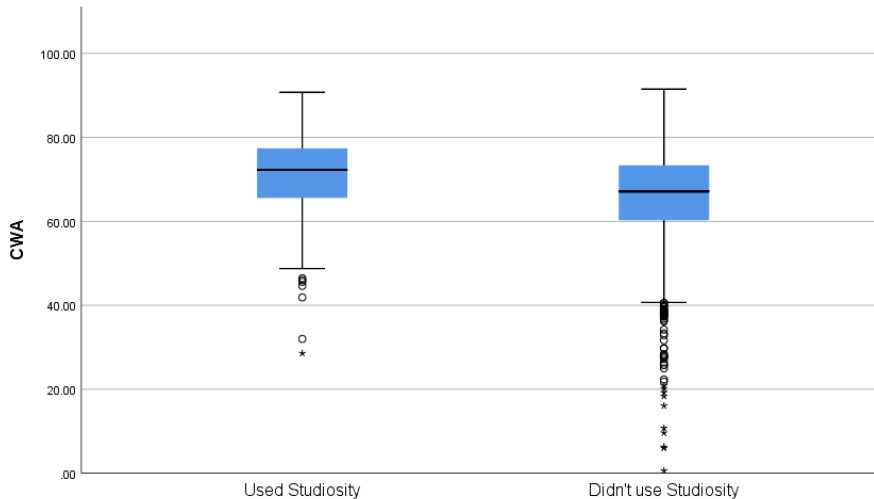


Figure 9: Comparison of the CWAs of students who did and didn't use Studiosity

3.2.2 Retention

Analysis of the population of 2381 students showed that 92.3% of the 782 students who used Studiosity in 2019 either completed their degree at some point in 2019 or 2020 or re-enrolled in 2020, compared to 86.3% of the 1599 students who didn't use Studiosity in 2019. The differences between the two groups are illustrated below:

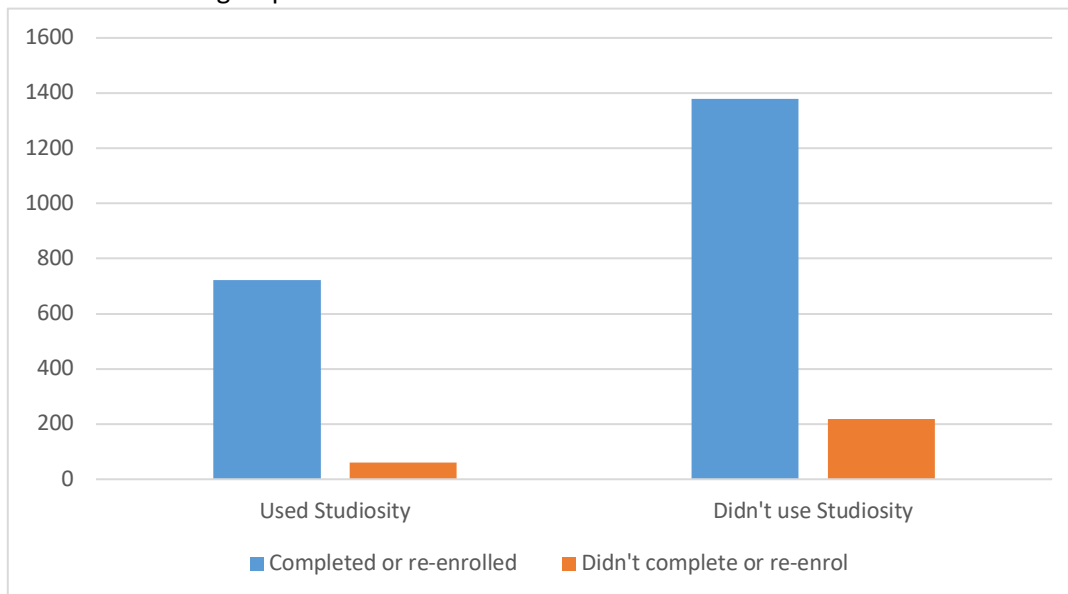


Figure 10: Completion/re-enrolment totals for students who did and didn't use Studiosity

3.2.3 Unit marks and unit status

For this part of the analysis, the unit marks and unit status of students who accessed Studiosity through the INDH1006 Blackboard page were compared with the unit marks and unit status of students who did not (even if they did access Studiosity through the Blackboard page of another unit or units).

Of the 2381 students enrolled in INDH1006, 60 withdrew from the unit and 1 was still enrolled, so all were removed from this part of the analysis. Of the remaining 2320 students, 217 (9.4%) used Studiosity in INDH1006 at some point during 2019, while 2103 (90.6%) did not. The table below displays key descriptive statistics for the unit marks of each group of students (note that in instances

where there were multiple unit marks for the same student, the marks were averaged to ensure one mark per student):

	Mean	Median	Standard deviation	Interquartile Range
Used Studiosity in unit	75.36	76.00	7.81	10.50
Didn't use Studiosity in unit	69.70	72.00	14.10	14.00

As evidenced from the table, both the mean and median unit marks were higher for students who used Studiosity compared to those who did not (the median being the more appropriate statistic in this case due to the negatively skewed data). Furthermore, the variation in unit marks was smaller for those who used the service compared to those who did not.

The following pair of box plots displays the distribution of unit marks for the two groups of students:

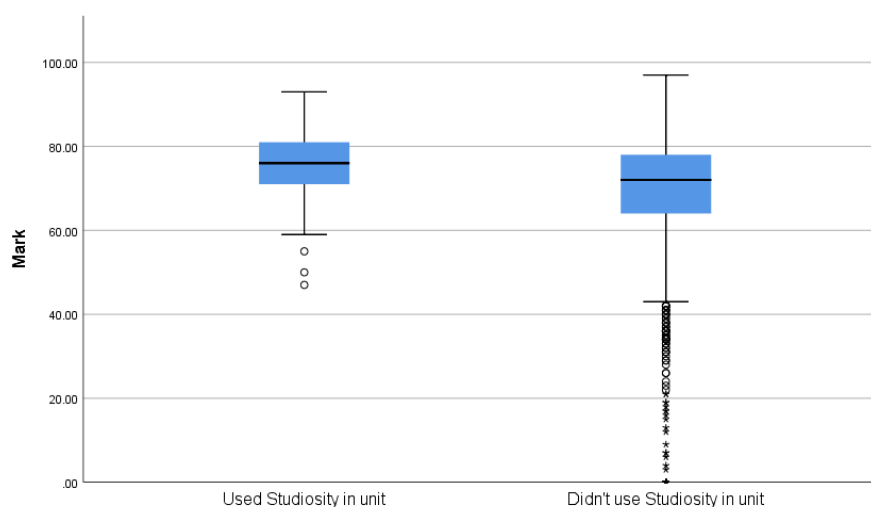


Figure 11: Comparison of the unit marks of students who did and didn't use Studiosity in their unit

Of the 2381 students enrolled in INDH1006, 1 was still enrolled in their unit and so was removed from this part of the analysis. Of the remaining 2380 students, 99.5% of the 218 students who used Studiosity in their unit passed, as compared to 91.1% of the 2162 students who didn't use Studiosity. When the 60 students who withdrew from their unit were also excluded from the analysis, 100% of the 217 students who used Studiosity in their unit passed, as compared to 93.7% of the 2103 students who didn't use Studiosity.

3.3 Introducing Language, Literacy and Literature for Educators (Curtin OUA) students

There were 1596 students enrolled in all study modes and study periods of the Curtin OUA unit Introducing Language, Literacy and Literature for Educators (EDUC1024) in 2019. Of these, 417 (26.1%) used Studiosity at some point during 2019 (either for EDUC1024 or for another unit), while 1179 (73.9%) did not. Findings obtained using this population of students are detailed in the following sections.

3.3.1 Course weighted averages

Of the 1596 students enrolled in EDUC1024, 442 did not have a course weighted average (CWA) and so were removed from this part of the analysis. Of the remaining 1154 students, 412 (35.7%) used Studiosity at some point during 2019, while 742 (64.3%) did not. The table below displays key descriptive statistics for the CWAs of each group of students:

	Mean	Median	Standard deviation	Interquartile Range
Used Studiosity	60.79	65	18.28	20.15
Didn't use Studiosity	44.13	49.92	25.25	46.31

As evidenced from the table, both the mean and median CWAs were higher for students who used Studiosity compared to those who did not (the median being the more appropriate statistic in this case due to the negatively skewed data). Furthermore, the variation in CWAs was smaller for those who used the service compared to those who did not. The following pair of box plots illustrates the differences in the distribution of CWAs for the two groups of students:

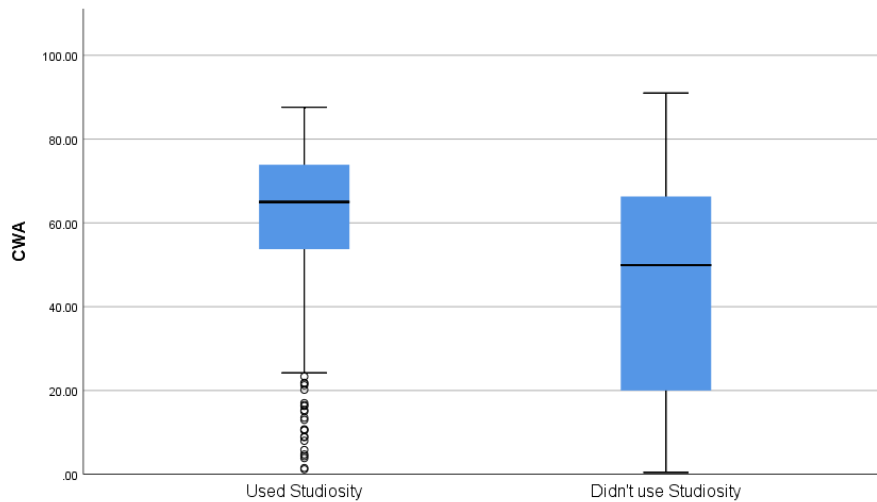


Figure 12: Comparison of the CWAs of students who did and didn't use Studiosity

3.3.2 Retention

Analysis of the population of 1596 students showed that 78.7% of the 417 students who used Studiosity in 2019 either completed their degree at some point in 2019 or 2020 or re-enrolled in 2020, compared to 41.0% of the 1179 students who didn't use Studiosity in 2019. The differences between the two groups are illustrated below:

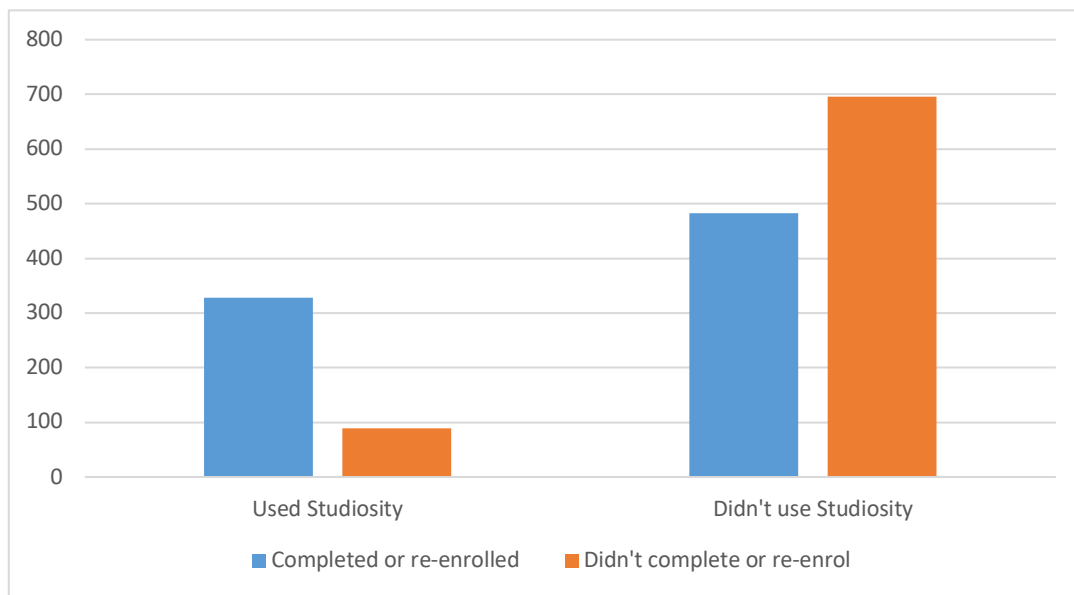


Figure 13: Completion/re-enrolment totals for students who did and didn't use Studiosity

3.3.3 Unit marks and unit status

For this part of the analysis, the unit marks and unit status of students who accessed Studiosity through the EDUC1024 Blackboard page were compared with the unit marks and unit status of students who did not (even if they did access Studiosity through the Blackboard page of another unit or units).

Of the 1596 students enrolled in EDUC1024, 107 withdrew from the unit and 1 was still enrolled, so all were removed from this part of the analysis. Of the remaining 1488 students, 263 (17.7%) used Studiosity in EDUC1024 at some point during 2019, while 1225 (82.3%) did not. The table below displays key descriptive statistics for the unit marks of each group of students (note that in instances where there were multiple unit marks for the same student, the marks were averaged to ensure one mark per student):

	Mean	Median	Standard deviation	Interquartile Range
Used Studiosity in unit	63.65	66.00	17.26	19.00
Didn't use Studiosity in unit	29.83	16.00	31.47	63

As evidenced from the table, both the mean and median unit marks were higher for students who used Studiosity compared to those who did not (the median being the more appropriate statistic in this case due to the negatively skewed data). Furthermore, the variation in unit marks was smaller for those who used the service compared to those who did not.

The following pair of box plots displays the distribution of unit marks for the two groups of students:

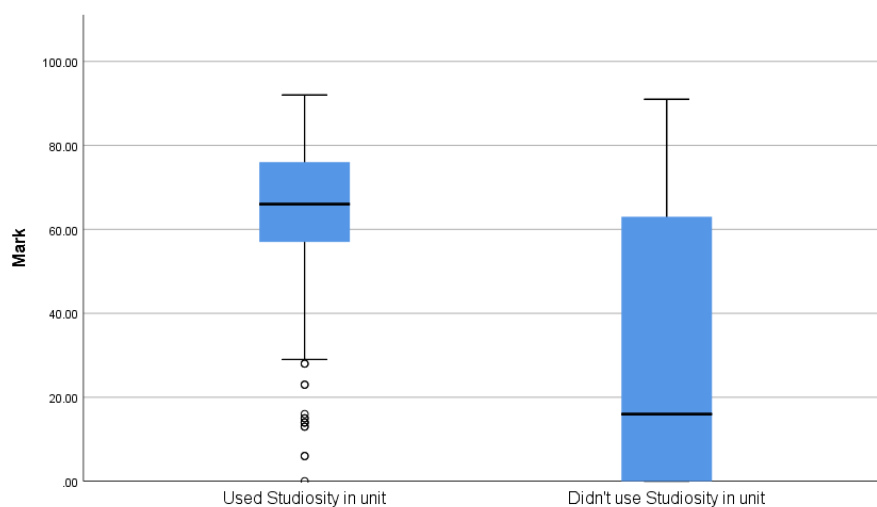


Figure 14: Comparison of the unit marks of students who did and didn't use Studiosity in their unit

Of the 1596 students enrolled in EDUC1024, 1 was still enrolled in their unit and so was removed from this part of the analysis. Of the remaining 1595 students, 85.1% of the 268 students who used Studiosity in their unit passed, as compared to 35.9% of the 1327 students who didn't use Studiosity. When the 107 students who withdrew from their unit were also excluded from the analysis, 86.7% of the 263 students who used Studiosity in their unit passed, as compared to 38.9% of the 1225 students who didn't use Studiosity.

4. Conclusion

This study shows a positive impact on the grades and retention rates of Studiosity users. This finding is based on both random sample and unit-by-unit analysis. Researchers point out that students who access academic support tend to do better than those who do not, so accessing Studiosity cannot be

identified as the sole reason for the positive results of this study. However, the fact that the grade increase is consistent across a range of units, as well as in the random sample of all users, is a strong indicator that students benefit from Studiosity's constructive feedback on writing (Writing Feedback) and real-time dialogue with advisors (Connect Live). Studiosity is clearly playing an important role in personalised student academic support at Curtin.