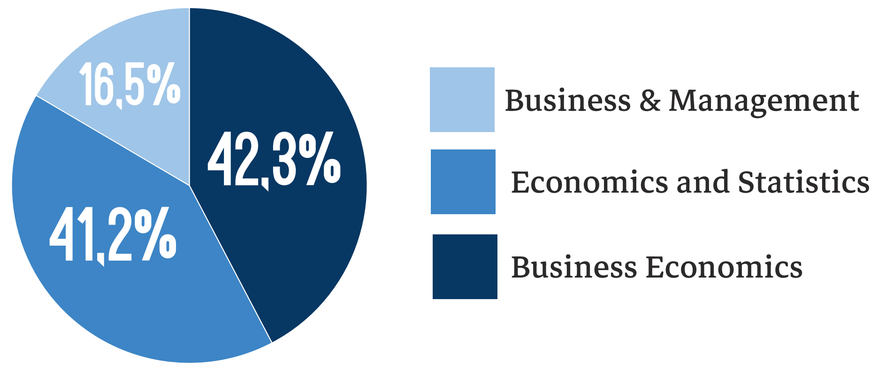
Economics Students' Digital Gap

8 of 10
use a laptop for studying purpose

1 of 3
does not know how his data is treated

Executive summary

The data presented in this report are the result of a survey released in December 2018 with the aim of understanding students' expectations and experiences with technology. The population chosen to be analyzed is represented by the Economics students of the University of Turin. This data set is uniquely valuable in its potential to explore the digital experiences of students and in highlighting what makes a difference to them. The survey's structure is based on the "Digital experience insights survey 2018" (by Jisc).



Survey structure

The core question set contained 15 questions; these often had sub-questions making the total number of individual questions a maximum of 55. Of the 2367 students invited to complete the questionnaire, 520 completed it entirely (21,96%) and 116 partially. The distribution of the questionnaire was made through the institutional e-mails that were issued specifically for the ISLP competition by the department of the University of Turin.

Digital at Course Level

In order to analyze the quality of digital teaching and learning of each course, students were asked to answer 10 different questions about digital activities their courses perform. The possible answers consisted in a scale score from 1 to 7. It was decided not to introduce first-year students due to their limited knowledge of the university environment. The linear regression method was chosen to define the parameters that mostly affect the final score given by the students to their own course.

Decodifications of the final variables

Q5B - Teaching rooms are well designed for the technologies we use;
Q6B - I have regular opportunities to review and update my digital skills;
Q6D - My course prepares me for the digital workplace;
Q6E - Learners are given the chance to be involved in decisions about digital services;
Q7 - How would you rate the quality of digital teaching and learning of your course?

Call:
lm(formula = Q7 ~ Q5B + Q6B + Q6D + Q6E, data = ISLP)

Residuals:

Min	1Q	Median	3Q	Max
-2.45248	-0.56502	0.01171	0.50466	2.55119

Coefficients:

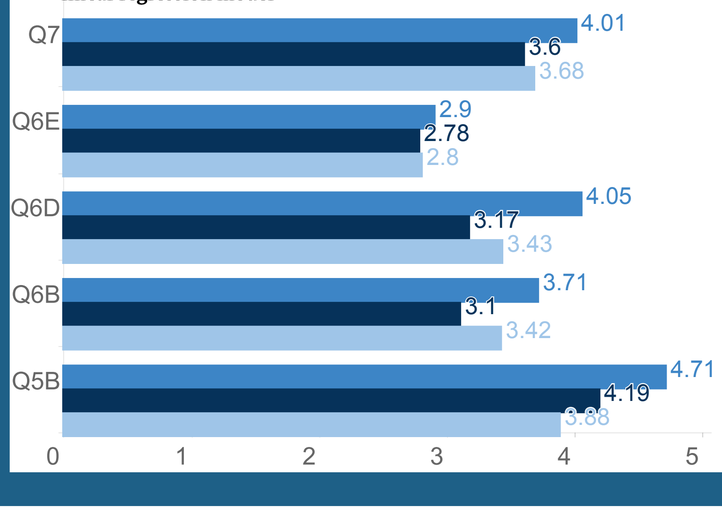
	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	0.99468	0.18523	5.370	1.82e-07	***
Q5B	0.14155	0.04345	3.258	0.00128	**
Q6B	0.15097	0.05618	2.687	0.00769	**
Q6D	0.34660	0.06053	5.726	2.98e-08	***
Q6E	0.14917	0.04964	3.005	0.00293	**

Signif. codes: 0 '' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1***

Residual standard error: 0.8933 on 246 degrees of freedom
Multiple R-squared: 0.5605, Adjusted R-squared: 0.5534
F-statistic: 78.43 on 4 and 246 DF, p-value: < 2.2e-16

The greatest influence is given by the variable "Q6D", a question related to the perception of students on digital preparation for the labor world provided by their Degree Course. Each additional point attributed to this question causes an increase of 0.347 on the final grade awarded by the student to his Degree Course.
One of the reasons why so much importance is given to the relationship between the university and the world of work may be hidden inside the high rate of unemployment present in Italy today. It could be assumed that today's students trust a lot in the university to find work and would like it to provide them with the right skills to better cope with the labor market. The average rate attributed to question "Q6D" is 3.522 on a scale with extremes 1 and 7. The situation changes slightly when we analyze the answers of the individual courses separately. Economics and Statistics has an average score of 4.049 followed by the Degree in "Business & Management" with 3.433 and "Business Economics" with 3.174. We could affirm that the Degree Course in Economics and Statistics is the most appropriate for a student who has the objective of undertaking a career at the end of the three-year period.
The possibility, however, to develop their digital skills regularly (Q6B), does not seem to have passed through barrier of 4 in any of the three courses. The mark ranges between 3.101, of the Business Economics Degree Course, and the 3.707, of the Economics and Statistics one.

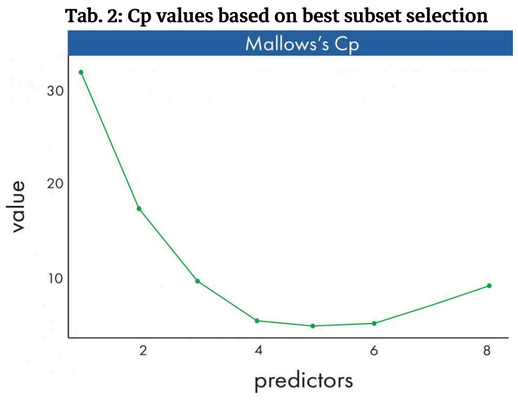
Tab. 1: Average rating attributed to variables resulted relevant in the linear regression model



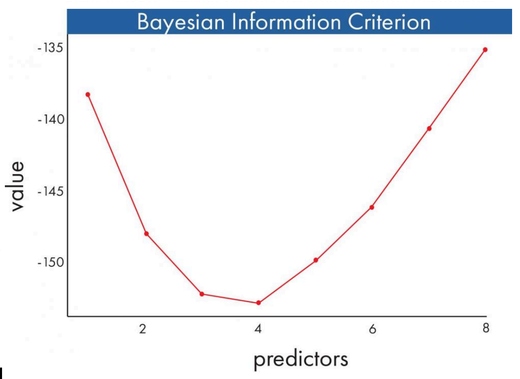
The model selection criteria

The model selection criteria included BIC, Mallow's Cp and adjusted R squared parameters. The final pruning was done by the Test t on the remaining variables. The final model defines 55.34% of the variation in the final grade attributed by students to their Degree Course. Homoscedasticity, normality and independence assumptions are valid.

Tab. 2: Cp values based on best subset selection



Tab. 3: BIC values based on best subset selection



The remaining two variables present a homogeneous influence in determining the final mark. Among these, the adequacy of the university classrooms to the technologies used (Q5B) has accumulated an average score of 4.261, with a maximum of 4.707 represented by the degree in Economics and Statistics which seems to be more prepared to accommodate technology. The variable "Q6E" defines the strength of the communication between the university structures and their students in relation to the digital services offered. The average score accumulated is 2.827, the lowest in relation to the other variables, and it may reflect the absence of communication between the student and his degree course.

Tab. 4: The percentage of students who said that they turn first to various contacts for digital support

Support contact	Economic Degree students
Other institutional support	0,38%
Friends and family	16,35%
Fellow students	40,38%
Lectures on my course	3,08%
Online information	39,81%

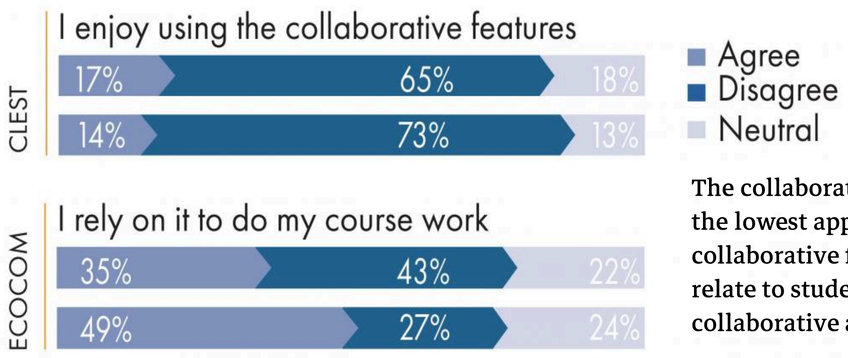
This last indication can also be observed in question 11 of the questionnaire ("If you need help with your digital devices or skills, who do you turn to first?"). 'Other institutional support' and 'Lecturers on my course' are the least likely place that Economics students say they first will turn to. This does not mean that students are not contacting support staff or lecturers, perhaps after speaking with other students or searching form online information.

Digital Lives of the Learners

To better understand the main differences between the degree courses a tree model was built under the observations of the Economics and Statistics, coded as "CLEST", and Business Economics, coded as "ECOCOM", degrees. Business & Management will not be considered in this analysis due to the low number of complete responses.

The 1st leaf (Node 4), with an almost 80% of probability, describes Business Economics students as students who do not use desktop computers for studying purposes (Q1Desktop) but prefer mobile devices, which are regularly used to access their Virtual Learning Environment (Q14MoodleC). They use educational games or online simulations for learning (Q2C) in rare occasions, a symbol of a degree course that prefers traditional teaching methods. The 6th leaf (Node 12) on the contrary, with a probability of 91.3%, identifies Economics and Statistics students as students who do not prefer accessing their VLE on a mobile device (Q14MoodleC), which may let us think that the VLE is not a daily based tool for the Economics and Statistics Degree. They affirm that the use of technology during lessons can fit learning into their life more easily (Q8POSC) but they do not agree with a greater use of the Virtual Learning Environment as stated in Q14MoodleE: "I would like it to be used more by my tutors". In conclusion we can affirm that the Virtual Learning Environment appears to be the parameter that most distinguishes the two Degree Courses.

Tab. 5: The percentage of Economics students who agreed, had a neutral opinion or disagreed when asked about various aspects of their VLE experience



This last indication can be further analyzed by observing the percentage summary results of the questions from the thirteenth section. Business Economics students seem to rely much more on the VLE for their course work.

The collaborative features of the VLE received the lowest approval. This may be because the collaborative features are under-used or it may relate to students' ambivalence about collaborative and group work generally.

In fact, group work is preferred if accompanied with moments where students can learn on their own. As stated in the chart below, 50% of the students have shown preference for a mix of group and individual learning, 46% prefer to study on their own and only 4% of the students are excited about group work.

Tab. 6: The percentage of Economics students who said that they prefer to learn in a group, a mix of group and individual work, or on their own

Key Facts and Conclusion

To better visualize the key points analyzed in this report a radar chart with four macro parameters, based on different sections from the survey, was created. It appears that Economics and Statistics Degree Course presents a study environment more suited to the technology used. Students from this course appear to be more inclined towards technology and digitization.
Institutional communication appears almost equal in both courses and its improvement should be taken into consideration in order to ensure a much more welcoming environment for the future students. Students' perception about the virtual learning environment usage appears more positive inside the Business Economics Degree Course. Further analysis should be done to understand the VLE problem inside the Economic and Statistics Degree Course.