


Learning Analytics Policy and Strategy		
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Learning Analytics Policy and Strategy

Revision History

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1 Definitions

Learning Analytics: Learning Analytics is “the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs” (Siemens & Long, 2011, p.34¹).

Macro Learning Analytics: use of aggregates to provide insight on key performance indicators, such as student numbers, progression rates, retention rates, evaluation of interventions addressed at improving key performance indicators, evidence-based practice.

Micro Learning Analytics: data analytics for feedback at operational level aimed at enhancing the student experience, and provide feedback and aggregates at student level, module level and programme level.

2 Background to policy and strategy

The TU Dublin – Blanchardstown campus is part of the recently formed Technological University Dublin. The functions of the TU shall be to, inter alia: provide teaching and facilitate learning that is informed by research; provide for the broad education, intellectual and personal development of students; to promote the involvement of stakeholders in the design and delivery of programmes of education and training.² The institute is a partner in the Data Enabled Student Success Initiative³, using data to inform initiatives that help students succeed and achieve their academic goals.

The strategic aims for policy and strategy for application of Learning Analytics (LA) at TU Dublin – Blanchardstown campus are to support the learning experience of the student as the primary stakeholder, and to provide relevant and up to date business intelligence to all stakeholders to facilitate informed decision making throughout the Institute in support of our strategic plan. When used to measure the impacts of different initiatives, LA can aid in efficiency improvements by determining if/where public-funds and resource are being deployed in support of the best outcomes of all students.

Learning analytics can support a variety of functions across the institute, both at a micro and macro level. It can also enable a more equitable service both in terms of being inclusive of all students and providing a more detailed insight into the requirements of a diverse student population. This will be ever more important as we adjust to the challenges of supporting a large student cohort. Exposure to learning analytics as part of their learning experience can help our students build 'digital savviness' and prompt more critical reflection on how data about them is being used more generally.

External drivers for the application of LA include:

1. The need for public accountability and transparency;
2. Deriving performance metrics that could be used evaluate quality performance and for external benchmarking;

¹ Siemens, G., & Long, P. (2011). 1st International Conference on Learning Analytics and Knowledge, Banff, Alberta, February 27–March 1, 2011.

² Technological Universities Act 2018, <http://www.irishstatutebook.ie/eli/2018/act/3/enacted/en/pdf>

³ TU Dublin are members of the National Forums Data Enabled Student Success Initiative ([DESSI](#))

3. Address the national focus on improving retention in the context of increasingly diverse intakes;
4. Benefits reported from the use of analytics within Higher Education internationally, and in other sectors of society (e.g. business); and
5. Increasing expectations by students as customers of a rich and responsive online environment.

Internal drivers for the application of LA include:

1. Enabling improvements in student retention and progression at the institute;
2. Evidence-based, and efficiency in, teaching and support activities and resources;
3. Improved overall satisfaction of students; and
4. Need for real time, informed decision making.

3 Purpose

Learning analytics policy defines appropriate use of student data for learning analytics. It recognises that there are potential privacy issues arising from combining sources of student data and modelling that data. Therefore, this policy aims to ensure that data collection and modelling is transparent, has clearly defined boundaries for data collection and application of LA outcomes, and that it is done for the benefit of the student to improve the learning experience. The policy defines a set of guiding principles to inform the ethical use of learning analytics at the Institute. The policy relates to other TU Dublin – Blanchardstown campus policies and procedures as outlined in Table 1.

Table 1. Institute policies and procedures relevant to learning analytics

Policy	Relevance
Data protection policy (2MP27) GDPR	Data protection principles, responsibility for use of personal data, procedures for use of personal data
Record retention policy (2MP35)	Record retention schedule determines how long different types of records/data are retained
Research ethics and code of good research practice (3RD01)	Including: use of humans for research purposes; publication and authorship; ethical clearance for research
IT support data governance policy (3IT04)	Data ownership responsibilities and data classification
Child protection and welfare policy (2MP32)	Applies to all who come into contact with children, young people and young students.
Compliance Policy (3IT05)	Acceptable usage of data and resources
Outsourcing/Third Party Access Policy (3IT20)	Policy governing the outsourcing of electronic resources and data
Data Protection Procedures (2MP40)	A common core set of values, principles and procedures intended to achieve a standard set of universal compliance parameters based on GDPR

Learning analytics strategy sets out the short to medium term plans for the application of learning analytics at TU Dublin – Blanchardstown campus, as part of academic quality enhancement framework supporting the following institutional objectives:

1. To provide feedback to students on their learning interactions and progress that empowers students to improve their likelihood of success.
2. To provide alerts and reports to teaching and teaching support staff relating to student activity and progress, that would enable and inform appropriate intervention strategies.
3. To provide alerts and reports to Heads of School that would enable and inform appropriate management interventions and professional development strategies.
4. To enable the institute meet QA and QE requirements.

Learning analytics strategy is to be reviewed annually and updated to reflect lessons learned from initial pilot studies.

4 Learning Analytics Policy

4.1 Guiding Principles for Learning Analytics

The following guiding principles will ensure that learning analytics projects and implementation processes are aligned with the institute strategies, policies and values. The guiding principles support that: institutional policies, practices and procedures relating to Learning Analytics should be respectful of students and staff as partners in learning; and should be cognisant of the principles of academic freedom, student engagement, enabling autonomous learning and mutual responsibilities.

Primary focus is on benefit to learning

1. The primary purpose of Learning Analytics is to benefit the student learning experience. It is the responsibility of the institution to ensure that its capabilities and outputs are not used in any way that conflicts with this primary purpose.

Meeting legal and ethical compliance

2. Data protection by default: Only relevant data, that is used in compliance with the principles of the GDPR, will be processed. Every aspect of data use for learning analytics will be disclosed. Where consent is required, this will be clearly explained.
3. Data protection by design: all new learning analytics initiatives will comply with Data Protection by Design, ensuring data collection and processing comply with general data protection regulations and data minimisation.
4. Learning Analytics initiatives may give privileged access to personal data. Only legitimate users will have the permission to access any such data and such users need to be provided with appropriate training for compliance.

Recognition of the limitations of learning analytics models

5. Personalities and behaviours are considered dynamic. Therefore, the picture of a student's behaviour that learning analytics may present will only be a temporal snapshot, hence, should not be treated as permanent definition of who they are and what they do.
6. Human learning and behaviour are far too variable and complicated to be fully understood through analysis of learning related data alone. While learning analytics can undoubtedly give detailed insight into the dynamics of learning processes and outcomes, it will never be able to give a full picture of the complexities of learning.

Duty of care to students

7. It is essential that Learning Analytics is underpinned by a rigorous, scientific approach to modelling and intervention. The institute will ensure that the limitations and potential biases in the data are understood, and the impacts of bias in the data are minimised.
8. Learning analytics strategies will aim to provide a uniform experience for all students. While some outcomes may be more targeted at particular programmes and categories of students, it will be ensured that information derived from student data will be used for the benefit of all students
9. Where results of a learning analytics model identify students that may benefit from secondary course intervention measures, the action arising from that model will be sensitive to the student needs and acted on in a responsible manner. Analysis of data will never result in a significant action without human intervention.

Duty of care to staff

10. Learning analytics will not be used to monitor or evaluate staff performance.

4.2 Responsibilities

- 4.1.1. Analytics presented to students are intended to help them understand how their learning is progressing, and suggestions may be made as to how they can improve their practices. Students are responsible for assessing how they can best apply any such suggestions to their learning.
- 4.1.2. The institute recognises that learning analytics cannot present a complete picture of a student's learning, and that the associated predictions may not always be accurate. Students will retain autonomy in decision making relating to their learning; the analytics are provided to help inform their own decisions about how and what to learn.
- 4.1.3. Where a learning analytics model indicates that a student may benefit from an intervention, the institute will endeavour to follow up on an intervention while recognising that this may not be possible in all cases.
- 4.1.4. Interventions, whether automated or human-mediated, will normally be recorded. The records will be subject to periodic reviews as to their appropriateness and effectiveness.

4.3 Confidentiality

Personally identifiable data and analytics on an individual student will be provided only to:

- The relevant student.
- Institute staff members who require the data to support students in their line of duty and in a professional capacity.
- Institute staff members who require the data to meet regulations or statutory obligation.
- Third parties which are processing learning analytics data on behalf of the institution shall be in compliance with Outsourcing/Third Party Access Policy (3IT20).
- Other individuals or organisations to whom the student gives specific consent.

- Institute IT staff will have access to systems and data in order to maintain proper functioning of systems rather than to access any individual's data.

5 Learning Analytics Strategy

The following learning analytics strategy outlines plans for both macro and micro learning analytics. Learning Analytics strategy and implementations will work in partnership with other student support initiatives.

5.1 Structures for supporting Learning Analytics

- 5.1.1 All LA initiatives will be evidence-based and will be developed in response to requirements of stakeholders. Initiatives, and the interventions arising from those, will be managed within existing staff functional roles and/or committees, supported by a learning analytics working group.
- 5.1.2 Responsibilities will be clearly specified in as part of each proposed analytics initiative. All Learning analytics initiatives will: adhere to exiting institute policies and procedures; clearly state who is responsible for on-going monitoring and evaluation and how this will be done; clearly state who is responsible for follow up interventions and how this will be done.

Examples of monitoring and evaluation roles:

- Initiatives providing feedback on aggregate retention and progression rates could be the responsibility of Heads of School and Heads of Department for consideration by the relevant course boards.
 - Initiatives addressing the institute's requirement to evidence enhancements driven by data could be managed by the Quality Assurance office and the registrar's office.
 - Initiatives that inform individual student interventions could be the responsibility of course co-ordinators, module leaders or the student support office.
- 5.1.3 A learning analytics working group will support the development of leaning analytics capacity at the institute as follows:
- Organise training for staff on learning analytics and the appropriate interpretation of model results.
 - Seek funding for, and/or provide guidance on the implementation of learning analytics projects.
 - Support periodic reviews of the effectiveness of learning analytics initiatives, and the evaluation of learning analytics models, for both student facing and staff facing dashboards or other reports from learning analytics.
 - Support periodic reviews of what data is shared via learning analytics initiatives, with whom, and by when. The purpose is to ensure appropriate and timely flow of information, limited to those who need it, and provide clarity on who should know what by when.
 - Facilitate ongoing collaboration with TU4D partners.

5.2 Transparency and Legal Basis for Processing Data

- 5.2.1 The institute's Data Protection Policy (2MP27) and Data Protect Procedures (2MP40) detail TU Dublin - Blanchardstown Campus regulations on processing of student personal data, and the legal basis for doing so. Each learning analytics initiatives must ensure that

it complies with both of these policies, and ensure that at point of collection the data controller states the purpose and legal basis for processing. In recognition that some students are under 18, all work must also comply with the institute's policy on child protection and welfare (2MP32).

- 5.2.2 All learning analytics initiatives will comply with General Data Protection Regulation's (GDPR) stipulation for Data Protection by Design, i.e. are designed and built with data protection and privacy in mind. Only personal data which are necessary for each specific purpose of the processing are processed. That obligation applies to the amount of personal data collected, the extent of their processing, the period of their storage and their accessibility.

A sample student FAQ related to learning analytics is included as an Appendix.

5.3 Learning Analytics Data Sources

All the Institute's information systems should be considered as potential analytics source systems with the exception of the special categories of personal data as outlined in GDPR legislation. Initially, learning analytics initiatives will consider data from the following sources, while operating in accordance with the learning analytics policy and other relevant policies:

- **Banner:** registration data, CAO data, institute grades, financial data, addresses, schools attended.
- **Moodle:** Student activity records, contributions to forums, individual assessment grades, Moodle analytics.
- **CMIS:** timetables, student class groups, student tutorial groups, exam scheduling.
- **Library**
- Annual ISSE student feedback.
- Student profiling during induction
- Other surveys completed as part of specific projects.

5.4 Evaluation of Learning Analytics Output and Impact

The initial focus of learning analytics initiatives will be:

Macro level analytics:

- Institute wide, aggregate analysis of data to evaluate the processes, services and facilities we offer students and potential students.

Micro level analytics:

- Identification of at risk students early in semester 1 to facilitate focused and informed student support initiatives for all students that may benefit from additional support.
- Develop greater insights into the reasons for student drop out, and how best to support students that are unsure of their pathway at a key change point in their lives.

High level indicators of success could include:

1. Evidenced enhancement of quality and effectiveness of teaching, e.g., specific feedback such as ISSE etc.

2. Increase in student retention rates ascribed to effective interventions (both automated and human).
3. Increase in the quality and effectiveness of learning as per assessment results.

5.5 Implementation plan

Initial projects will look at (but are not limited to):

1. A pilot project that focuses on one (or a few) first year programmes that have poor pass rates, with the support of the relevant head of school and department. A similar project will be run in DIT. A more detailed project specification will be developed in collaboration with the DESSI/Learning Analytics team at DIT.
2. Develop a repository of case studies of current uses of student data. This is a TU Dublin - city campus Learning Analytics initiative that will be extended to the Blanchardstown campus.
3. Investigate the feasibility of developing a data warehouse structure to support learning analytics at the institute, in collaboration with TU Dublin city and Tallaght campuses, and the TU Dublin digital campus.
4. Investigate potential indicators of student engagement from Moodle data.
5. Survey all staff for feedback on what learning analytics would be useful to them and examine the role of Discoverer in providing additional reports that would add value to current working groups and department functions.
6. Assess results from a survey of students on their perspective on learning analytics.
7. The process will seek peer review in all stages as a mechanism for validating the outcomes as part of scholarship.

6 Acknowledgements

This learning analytics policy and strategy document has been informed by the following:

- Engagement with, and support and advice from Lee O'Farrell, DESSI National Coordinator, National Forum for the Enhancement of Teaching and Learning;
- Learning Analytics Principles and Practice from: [National Forum for Teaching and Learning](#); [University of Edinburgh](#); [Open University UK](#); [Charles Stewart University](#);
- TU Dublin – Blanchardstown campus's partnership with the SHEILA project: <http://sheilaproject.eu/>

Appendix: Student Information sheet

The following is a sample student information sheet adapted from Open University UK's ethical uses of student data for learning analytics policy⁴.

1 Definition of terms.

Aggregated data: data that is summarised, for example: the average grade in a class; the number of students who passed or failed a module.

Anonymous data: data from whom an individual cannot be identified. This would include removing names and any other attributes that may identify an individual. For example, gender might identify an individual in a particular class group if they were the only person of that gender in their group.

Learning Analytics: The analysis and reporting of data about students and their learning contexts, for purposes of understanding and optimising learning and the environments in which it occurs.

Virtual Learning Environment: An online tool that contains lecture notes, assessments, quizzes, news forums, and to which students can upload assessment work.

2 What is learning analytics?

Learning analytics is the analysis of current and past data relating to learning activities only. The results can be used to inform improvements to the learning environment at the institute. This can be done in two ways:

- **At an aggregate level:** Use aggregates generated from available data to evaluate the learning environment and inform improvements. For examples, did introducing a new learning technology in a particular course improve overall understanding of key concepts on a course? Individuals are not identified in this level of analysis.
- **At an individual level:** we hope in the future to use learning analytics to help identify individual students who may be falling behind in course work to an extent that they are at risk of non-completion. This would be based on inferring levels of engagement in coursework from student data, such as not engaging in VLE based activities that are part of scheduled coursework.

3 What is a learning analytics policy, and why is it different from data protection policy?

The institute has developed a policy on the ethical use of student data for learning analytics to recognise that there are potential privacy issues around combining and analysing student data. We want to be transparent about how and why we use different types of information and set boundaries on how we use data. We want to reassure students that any information we may analyse has already been provided directly by them or collected in the course of their studies, and any conclusions drawn from the analysis will be for their benefit.

⁴ Available from: <https://help.open.ac.uk/documents/policies/ethical-use-of-student-data/files/23/ethical-student-data-faq.pdf>

The policy recognises that:

- i. Learning analytics presents a snapshot, reflective of student behaviour at a given time only and cannot be treated as an ongoing definition of who they are and what they do.
- ii. Learning and behaviour are far too varying and complicated to ever be fully understandable through an assessment of data. While learning analytics can give detailed insight into what is happening, it will never be able to give a full picture of the complexities of learning.
- iii. Students retain autonomy in decision making relating to their learning; the analytics are provided to help inform students own decisions about how and what to learn.

4 What data does the institute hold about me, and how is it used?

Below are examples of the data available to the institute as a result of student registration and study, potentially available to support learning analytics.

Personal information required to register: The student is required to provide this information in order to register. For example: Sex; Date of birth; Previous education qualifications; Disability information; and Financial data relating to fees and grants

Study record: Much of this data is entered by the college staff and not under the control of the student. For examples: Programme and modules a student is registered on; Grades for modules completed, and a breakdown of grades for each assessment completed; Attendance data

System generated data, for example: Student ID; Activity on our Virtual Learning Environment (VLE), Moodle; Wifi and system login activity logs.

Data drawn from external systems (e.g. Facebook posts) will not be used for learning analytics purposes unless that site is an agreed formal part of the study programme.

5 Can I choose not to have my data included in learning analytics

It is not possible to exclude your data from models that are generated from student data that are aggregated and anonymous. You will be able to opt out from individual level learning analytics once that has been developed in the institute. Clear procedures for both opt in and opt out will be provided to all students, in compliance with data protection regulations.

6 Who can see data about me?

Personally identifiable data and analytics on an individual student will be provided only to:

- Institute staff members who require the data to support students in their professional capacity.
- Institute staff members who require the data to meet a legal or regularity obligation.
- Third parties which are processing learning analytics data on behalf of the institution in compliance with Outsourcing/Third Party Access Policy (3IT20).
- Other individuals or organisations to whom the student gives specific consent.
- Institute IT staff will have access to systems and data in order to maintain proper functioning of systems rather than to access any individual's data.