

Adopted by TU/e Executive Board December 7th 2023

Code of Practice Learning Analytics

Explaining

- *The use of learning analytics at the TU/e: main goal, purposes, and legal basis;*
- *Principles and standards;*
- *Transparency towards student and the protection of their personal data;*
- *Personal data used in learning analytics*

1. The use of learning analytics at the TU/e

The interests of the students are the university's main concern. With the use of learning analytics our primary goal is to support students and enhance their learning and study process. In addition, the TU/e can use this data to provide information and insights that can contribute to the quality of education and educational support.

1.1 Purposes

This paragraph describes for what purposes learning analytics may be used, in line with the primary goal and the TU/e's vision on learning analytics. If the purpose of using learning analytics at TU/e is not included in this list (e.g., for a specific research purpose other than mentioned below) the proposal and its purpose must pass an ethical and privacy review. The list will be reviewed every two years and additional purposes can be added if these are in line with the TU/e's view and with ethical and privacy standards. In addition, this paragraph indicates for what purposes learning analytics cannot be used as these purposes are not in line with the TU/e's view and privacy and ethical standards. Learning analytics can be used for the following purposes:

Enhancing the learning and study process of students

- To provide students insights into their own learning behavior, possibly in comparison to other participants in a course at aggregated level – e.g. in a student dashboard or other useful tool;
- To indicate, possibly with the support of AI, whether a student is expected to pass or fail a course and provide study recommendations based on the prescribed course materials. The personal prediction or assessment should only be accessible to students;
- To provide students, possibly with the support of AI, recommendations for prescribed course materials based on the student's use of the materials;

- To create a better understanding and knowledge on what elements and aspects of learning and study behavior contribute to successful study programs.

Contribute to the quality of education

- Provide information and insights, at an aggregated level, to teachers on the use of their course materials;
- Use the information and insights to revise the curriculum and course materials where found suitable;
- Use the information and insights to support students at aggregated level, or at individual level (in the latter case, data and insights from an individual student can only be used if the student gave their explicit consent to share their data with the educator (e.g., teacher, student dean));
- To create a better understanding and knowledge on what elements and aspects of learning contribute to a better quality of education;
- Contributing to scientific research on learning, teaching and academic success;
- Achieving evidence-based policy improvements for information, education, assessment, student guidance and educational support at the TU/e.

1.1.1 For what purposes can learning analytics not be used?

Learning analytics can not be used for the following purposes:

- Surveillance purposes or intrusive monitoring of individual study behavior by educators;
- To include or use logging data from our learning management system for the grading of a course or summative assessment for an individual, or make it a part of summative grading/assessing a student;
- Automatic decision making that has a binding impact on a student;
- To use a differentiation between students based on personal background characteristics or any other bias to provide a different quality of education as opposed to other students, discriminate students, or exclude students of educational participation or access to education.

1.2 Legal basis for learning analytics

The legal basis (legal ground) for the use and implementation of learning analytics at the TU/e is the performance of a public task (Article 6.1(e) of the GDPR). The main public tasks assigned to the TU/e under the Wet op het Hoger Onderwijs en Wetenschappelijk Onderzoek (WHW) are: to provide scientific education and to conduct scientific research (article 1.3(1) WHW). In addition, to pay attention to the personal development of their students (article 1.3(5) WHW). If learning analytics meets the below requirements, it fits this legal basis because the intention of the TU/e is to improve the quality of education and to support students in their learning path.

The data processed for the purpose of learning analytics, must also be necessary and proportionate. Learning analytics that meets the following requirements can be processed under the legal basis 'performance of a public task':

- Learning analytics is used for one of the purposes as listed under paragraph 1.1 of the code of practice;
- Learning analytics is implemented and conducted in line with the principles and standards (see paragraph 2);
- Only personal data as green-listed in paragraph 4 is used.

If the use and implementation of learning analytics does not meet all of the above requirements, the TU/e cannot use 'the performance of a public task' as the legal basis to process this personal data. In

such cases, a review must be conducted by the ethical committee and the privacy team, after which the Data Domain Owner (DDO, ESA) will grant an approval, and 'informed consent' is required from the data subjects (students) to process their personal data so that informed consent is the legal basis for using their personal data (in line with Article 6.1(a) of the GDPR).

2. Principles and standards

Any project, research, or any other development making use of learning analytics, should be conducted in line with the principles and ethical standards set out below and will be monitored by an ethical committee. The committee may give solicited and unsolicited advice to the organization and oversees whether learning analytics at the TU/e are conducted in line with its Code of Practice.

2.1 Principles of learning analytics

Learning analytics at the TU/e must be applied in line with the following principles:

- The rights and interests of students are always paramount and respected, including their privacy rights;
- Learning analytics cannot be in conflict with the TU/e's legal obligations (including privacy obligations/obligations deriving from the GDPR), values and ambitions;
- The advantages and possible disadvantages of the use of learning analytics are weighed in each use/application of learning analytics;
- The privacy of those involved is never disproportionately violated;
- Learning analytics that must be considered personal data (except for pseudonymized data – see further) are never shared with the educators (e.g., teachers, student deans) without explicit consent from the student. Educators only have access to learning analytics in a sufficiently aggregated form to be considered anonymized data. Sharing pseudonymized data is only allowed when the receiver is not a teacher of the relevant course.
- Students have access to their personal learning analytical data. For comparison purposes, they can have access to learning analytical data of their peers, but only in an aggregated manner.
- The TU/e is transparent towards her students and students are well informed about the use of learning analytics at the TU/e;
- In line with that, data models and algorithms used for learning analytics are explainable, transparent, inclusive, and fair.
- Learning analytics can only be used in line with the purposes as depicted in the code of practice;
- Only the personal data that have been green listed (e.g., approved for use in learning analytics) in the code of practice can be used for learning analytics without explicit consent from the student(s) and educator(s);
- For the use of learning analytics that does not meet the principles and standards depicted in this code of practice, the following requirements must be met:
 - explicit consent from the student is necessary **and**;
 - the data must be necessary to collect or use to obtain its purpose **and**;
 - the TU/e's privacy team must assess the proportionality of the use of this personal data (which will be included in an appendix to the general DPIA) **and**;
 - An ethical review is necessary, **and**;
 - A review by the privacy team is necessary, **and**;
 - Approval of the Data Domain Owner (DDO, ESA).
- Data subjects (students) must always be able to exercise their GDPR rights;

- In case explicit consent is required to use other categories of personal data than the personal data depicted in the code of practice, or to share individual student data with a teacher or study dean, consent needs to be given freely. Not consenting in itself cannot have any negative consequences for the student(s) on their assessment results or graduation;
- Explicit consent can be withdrawn at any time;
- Learning Analytics only makes use of TU/e approved systems and applications;
- Data presented to an end-user is understandable, user-friendly, accessible in one place, and actionable for the intended end-user.

2.2 Ethical standards

In addition to the above principles, ethical standards have been put in place for the use of learning analytics at the TU/e. These standards must be met when making use of learning analytics.

- Digital well-being relates to the impact digital resources and online behavior have on a person's ability to realize their own potential, cope with normal stress, work productively and contribute to their community. The TU/e will ensure that adequate policies and procedures are in place to protect the students' digital well-being in the context of LA, in two aspects:
 - a) LA should not cause students to be overly engaged in learning data over their learning process and goals.
 - b) Students feel safe in digital environments. LA should not cause students to feel intrusively monitored or that their data is being processed disproportionately by the university.
 - c) Screen time limitation is part of the consideration in LA related educational design.
 Therefore, compliance with this code of practice, stimulating open dialogue about learning analytics, and involving data subjects in the design (e.g., co-design) is key.
- LA products and interventions should be designed with the human in the loop: in open conversation with the stakeholders and in co-design with stakeholders (e.g., students).

2.3 Implementation requirements

- The design and introduction of LA systems will take place with a strong commitment of staff and students, with the permission of the ICT Governance Board.
- TU/e acknowledges that data and algorithms can contain bias and will actively work to recognize and minimize any potential negative impacts (e.g., required data literacy for stakeholders, algorithm assessment by an independent person or team).
- In order to manage LA acceptance in the TU/e community well, new LA applications can be piloted on small scale (e.g., course level) and must be evaluated and/or investigated. Evaluated and investigated applications of LA can be introduced on a larger scale (e.g., program level, university level). Students have insight into their own data that is available to an educator albeit through an aggregated (e.g., $n \geq 5$) and/or anonymized view.
- Institutional knowledge gained is recorded and openly shared to maximize positive societal impact.
- Data literacy is an important competence for educators and students to appropriately interpret user-facing results.

2.4 Data quality standards

- Data quality is a measure of whether your collected data meets the requirements for the purpose of use (Domain Architecture DATA TU/e, 2021). Hence, data used in Learning Analytics must meet the quality requirements of related research and/or educational design.

Meeting the quality requirements for learning analytics ensures:

- Increase reliability of related research results
- Increase quality of education where learning analytics is used
- Reducing risks of making wrong conclusions
- Increase reputation of learning analytics

To ensure that the data is of high quality, LA users must consider the following:

- Establish quality requirements that the data must meet. Consider at least the requirements for quality characteristics of:
 - Accuracy
 - Completeness
 - Timeliness
 - Consistency.
- Develop agreements with the owner of the data (Data Domain Owner) about the quality requirements.
 - The data may have originally been collected for a different purpose
 - No quality may be lost during the data transfer
- Stakeholders will be made aware of the risks of not meeting the quality requirements.
- The responsible department and team ensure that a data quality management process is in place to continuously improve and ensure quality.

3 Transparency towards students and the protection of their personal data

The TU/e wants to be transparent towards her students in what personal data the TU/e collects of them and for what purposes. In line with the GDPR requirements, the TU/e has a privacy statement for (prospective) students online and the Record of Processing Activities (ROPA) is available on the intranet. The same transparency is required for learning analytics. To this end:

- Students are always clearly informed in advance of the processing of their personal data for learning analytics via the privacy statement on learning analytics;
- Students are informed of whom to contact in case of questions or complaints;
- In case explicit consent is asked to students, the explicit consent form includes a separate privacy statement that is based on the template informed consent form and privacy statement from the TU/e's privacy team;
- Explicit consent can be withdrawn at any point in time and students are informed of how to withdraw their consent;
- The TU/e and its staff are transparent about the use of data with the aid of learning analytics: where use is made of analyses and insights from learning analytics when formulating policy or making decisions, this is mentioned with an explanation of what data have been used and how they have been analyzed;
- Only the TU/e staff that require access to personally identifiable student learning analytical data, have access to this data. In general, this access is limited to the Business Intelligence and

Analytics team, as well as the students (who can only have access to their own personal learning analytics data, not that of other students) Students are informed about who has access to what (type of) learning analytical data.

- Teachers, researchers, study deans and/or counsellors do not have access to personally identifiable student learning analytical data unless a student explicitly consented to this;
- Teachers, researchers, study deans and/or counsellors have access to datasets with aggregated ($n \geq 5$) data or anonymized data. These datasets do not contain any personal data that would allow them to identify a student directly. All directly identifying characteristics such as (for instance) name, e-mail address, date of birth and student number have been removed from these datasets;
- Research publications on learning analytics never include personal or pseudonymized data.

4 Personal data used in learning analytics

Study and student-related data from different source systems at the TU/e can be used and combined in learning analytics. Below is an overview of the personal data that can be used in learning analytics and has been so-called green-listed. This personal data can be used in line with the purposes listed in this code of practice without the explicit consent of the student. However, in all cases, only the personal data that is necessary to obtain the goal/purpose can be used (in line with the proportionality requirement in the GDPR). This data can only be shared with the researcher in an anonymized or pseudonymized matter.

4.1 Overview of green-listed data for LA

- **Prior education data**
 - Profile selection prior education;
 - Type of prior education;
 - Educational institution (name, place, country);
 - Year of highest diploma obtained;
 - Study duration;
 - Participation in information sessions at TU/e and introduction sessions or other informative sessions at TU/e;
 - Level of education interested in (Bachelor, Master etc.);
 - Grades obtained in prior education.
- **Background characteristics**
 - Age, inferred from date of birth;
 - Gender;
 - Nationality (preferably: Dutch, EER, Non-EER);
 - Preferred communication language.
- **Study and education data**
 - Student number;
 - Final exam results;
 - Department, study program, courses;
 - Participation in exams and assessments;
 - Language proficiency test results;
 - Study performance at the TU/e (grades, resits, results);
 - Answers and performance of students in assessments, assignments etc.;

- Binding recommendation on continuation of studies (BSA);
- Switch (inside/outside TU/e);
- Drop-out 1st year, later years (date of leaving TU/e without finishing diploma);
- Continuation within the TU/e (e.g. from Bachelor to Master);
- Year of study;
- Study duration and progression;
- Distinction such as Honours and Cum Laude;
- Participation in exchange programs, internships, minors etc.;
- Diploma date;
- Career information (alumni).

▪ **Study behavior and learning analytical data**

Log data of learning and education systems, such as:

- Participation in informal assessments and assignments;
- Homework and practice participation;
- Participation in discussion forums
- Lecture attendance;
- Videos watched;
- Reading materials used/opened;
- Duration on participating and/or completing assignments, videos, reading materials etc.;
- Timestamps and clickstream data.

4.2 Personal data that can only be used in learning analytics under certain conditions

In addition to the above list, certain categories of personal data cannot be used at TU/e in learning analytics. This regards special categories of data which the TU/e is not allowed to process due to the increased risks of discrimination and sensitive nature of the data. This regards the following data:

- Data on racial or ethnic origin;
- Political views and opinions;
- Philosophical and religious beliefs;
- Trade union membership;
- Genetic data;
- Biometric data for the purpose of uniquely identifying a natural person;
- Data concerning health;
- Data regarding the use of student facilities;
- Data about sex life and sexual orientation;
- Financial information;
- Citizen Service Number (BSN in Dutch).

Data that belongs to any of these categories of personal data can only be processed and used with explicit consent from the data subjects (students) and after a review by the ethical committee and the privacy team, and approval from the DDO.

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