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STUDENT-DRIVEN LEARNING AT THE UNIVERSITY OF TWENTE

INFORMATION FOR EDUCATIONAL STAFF

UNIVERSITY OF TWENTE.

Dear reader,

Our University has always worked from a distinct vision on learning, in which students are expected to take initiative and deepen their understanding of complex subject matter through concrete hands-on projects. TOM is a manifestation of that vision, building upon the basics of project-led education and other forms of active learning that have a much longer history in Twente.

Since the implementation of TOM, *Student-Driven Learning* (SDL) has been used more and more as an overarching concept, covering and reflecting the UT vision on learning for both bachelor and master education. The concept of Student-Driven Learning was coined by former rector Ed Brinksma. Basically, SDL is about students actively taking initiative to shape their own learning path.

Yet, up until now, no clear definition or explanation of SDL was available. At the same time, teachers and educators have been asking for clarification of the concept and for receiving examples of how to stimulate their students to be more independent and self-regulating.

CELT wrote this booklet on SDL as a reaction to these questions. Its content is based on literature and on discussions with teachers, students, programme directors and education researchers.

We hope this booklet will stimulate discussion and further develop SDL as our University's vision on learning. But even more, we hope it will offer inspiration and invite teachers and teacher teams to explore different ways to further engage students in their learning, both in TOM as well as in Master's programmes.

Should you have any questions or comments, or need any further support, please contact us.

On behalf of the CELT-team,

Irene Visscher-Voerman

June, 2017

INTRODUCTION

Our ever-changing and developing society constantly requires graduates to obtain different knowledge and more skills than ever before. Many of today's professions did not exist twenty years ago, and it is impossible to predict the types of professions that will exist twenty years from now. What we do know, however, is that graduate and professional flexibility will be crucial, as students are likely to work in a more complex and rapidly-changing environment, with less secure and fewer permanent jobs. For this reason, we want to educate and encourage our students to become professionals who are capable of steering their own career development, by giving them greater control over their own learning process. In addition to preparing students for the future, giving them more autonomy over their own learning can also increase their motivation (Deci & Ryan, 2002).

This notion of students managing their own learning process is embodied in the concept of 'Student-Driven Learning' (SDL). Although this concept is based on proven theories, including self-determined learning, SDL is a relatively new term, one which the University of Twente is eager to adopt and implement in its project-based Bachelor's and specialist Master's programmes. Through the Student-Driven Learning programme, we aim to produce students and graduates who take responsibility for and steer their own learning paths, and thus further promote the entrepreneurial attitude we strive for at the University of Twente.

This booklet details the concept of SDL, provides insight into its potential and benefits, and serves as a practical guide for programme directors, coordinators and teachers. It is based on discussions with programme directors, teachers, educational advisors, and students.

WHAT IS SDL?

Student-Driven Learning, as intended for use by the University of Twente, can be described as the curricular foundation which supports and encourages students to develop self-determination and the "willpower" to steer their own academic progress. It allows students to take control and regulate their learning, and to adapt their behaviour to correspond with their chosen goals and values (adapted from Cloninger, C.R., Svrakic, D.M & Przybeck, T.R., 1993).

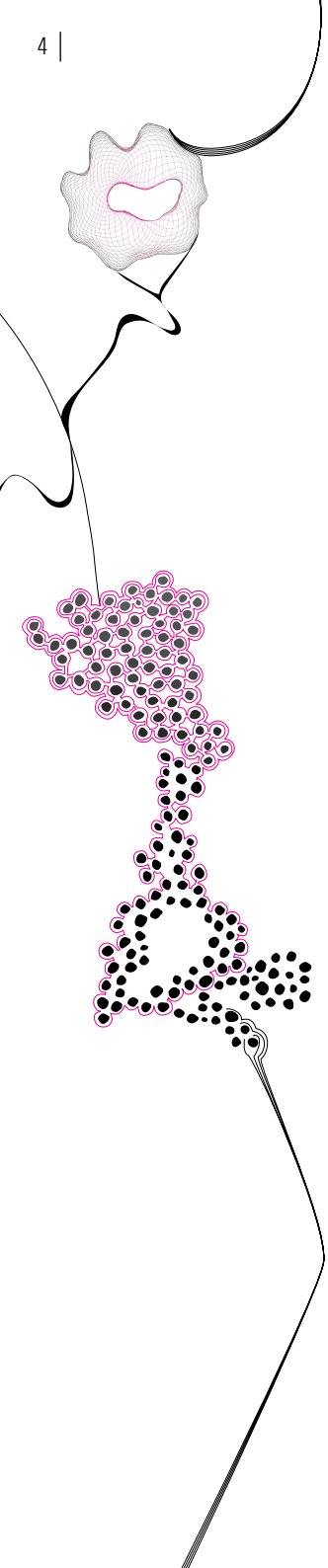
At the University of Twente, our programmes seek to develop a wide range of skills, and to provide students with the opportunity to create their own development and learning experiences (Vision 2020, University of Twente) through multiple projects, in minors, and in the final assignment of the Bachelor and/or Master. We believe that SDL will help achieve this vision, due to its flexibility and the increase in freedom and responsibility it offers to students. It also promotes the University's values and its goal of enabling students to accept responsibility for their own learning. However, in order for the SDL programme to be effective, teachers have an essential role as experts, facilitators and supervisors.

A MIND SHIFT

Student-driven learners should understand that they are responsible for their own learning process from their first day at the University. It is important to note, however, that students will not be expected to have the skills to handle all responsibilities immediately, without assistance. Throughout the academic programme, students will learn how to be accountable for their studies with proper guidance. This aims to activate the intrinsic motivation of the students, who are eager to learn themselves and work with (peer) students, and the teachers.

The SDL programme thus requires students to undergo a mind shift from being a "following" student (Teacher-Centred Learning), to becoming a student (and later a professional) who, ultimately, is able to learn entirely in a self-directed manner (Self-Determined Learning) as befits the concept of lifelong learning (Blaschke, 2012).

The key concept in the SDL programme is that students have to develop the skills to become more responsible. When students start the programme, they are likely to be hesitant to accept responsibility for their own learning, and could reject the concept. However, with proper facilitation, students become more comfortable with being held accountable, and are motivated by their own authority (e.g. Weimer, 2002). Similarly, in order to achieve effective facilitation, teachers need to 'let go' and trust their students to do the 'right thing', even though this may prove difficult initially for both student and teacher, as many students prefer teachers to take the lead in the learning process.



WHAT, HOW & WHEN

Students will be able to take responsibility for different aspects of their learning i.e. the what (content and subject matter), the how (learning activities), and the when (scheduling).

What (content)

In the SDL programme, students are given greater control over the subjects that are discussed, the order in which they are addressed, and the amount of time spent on each subject. A more rigid curriculum may demotivate students and diminish their learning, whereas allowing students more influence over the content will stimulate and motivate them. An example of SDL in a programme at UT is that students may be given more authority over their assignments and projects by being allowed to choose the subject or context of their projects (optionally from a range of pre-determined topics). Moesby (2002) indicates that 'ownership of the project work is a very important motivating factor for the student who is learning about the project environment' (p. 150).

How (learning activities)

Students can also be given flexibility in choosing the learning activities in which they wish to engage (e.g. workshops, assignments, self-tests, peer feedback, etc.). One way in which this can be achieved is to allow students increasing amounts of freedom throughout the curriculum, i.e. moving from less responsibilities at the beginning of a course to accepting more responsibilities at the end. This will teach students to accept responsibility for their own activities, and allow both students and teachers to become acquainted with students' new-found freedom. According to Weimer (2002), students are willing to work harder when they have a say in the type of activities and assignments they need to complete for a course/module.

When (scheduling)

Lastly, students in the SDL programme will be allowed greater influence over the scheduling of their studies, i.e. they can decide when and where to study. This, unlike a strict schedule of projects and coursework deadlines, acknowledges personal preference. For example, some students may choose to study at night, whereas others prefer to study in the morning. The flexibility of the study roster thus allows students to study when they are at their most engaged and motivated. This flexibility can be achieved, for example, by presenting short instructional videos, in addition to contact lectures; by scheduling optional physical or online consultation hours; and by allowing students to plan their own projects and set their own deadlines.

STUDENT-DRIVEN LEARNING TERMINOLOGY

There are a number of theories, concepts and models related to SDL, as well as multiple terms expressing similar concepts. In what follows, we provide a general overview of the origin of SDL and present related terminology.

Self-Determination Theory (SDT) is a macro-theory of human motivation, emotion and development. The application of this theory in educational practice focuses on the autonomy, competence and relatedness of the students (Niemiec & Ryan, 2009).

Heutagogy, a form of self-determined learning, is a holistic, learner-centred approach to learning and teaching in formal and informal situations. The theory is grounded in humanistic and constructivist principles (Blaschke, 2012).

Self-Directed Learning, Self-Regulated Learning, Student-Directed Learning and Student-Regulated Learning share the same key concepts that underpin Student-Driven Learning (i.e. autonomy, responsibility etc.). The University of Twente has chosen to use the term "Student-Driven Learning" because it literally describes a situation where the student steers his/her own learning process. This fairly new term for this educational approach is specified within the UT context.

Student-Centred Learning (SCL) is a learning approach in which students construct and reconstruct knowledge dynamically, and in which their growing engagement is supported by motivational, cognitive and social aspects. This approach is rooted in constructivist and self-determination theories (Lee & Hannafin, 2016).

At the UT, Student-Driven Learning is considered to be rooted in Self-Determination Theory and Heutagogy and, in order to support the development of students towards becoming professional Self-Determined Learners, it also draws on the Student-Centred Learning approach.

EXAMPLES FROM OUR TEACHERS

- Within the Computer Systems for Technical Computer Science module, two types of assessment are implemented for the Operating Systems section. Students submit answers to a number of assignments via Blackboard and are given the opportunity to choose whether to participate in a written exam. Some assignments are mandatory, and some are optional. Each answer must contain a detailed explanation demonstrating that the student has fully understood both the question and his/her own answer. Students demonstrate their progress during regular weekly interviews with a student assistant or lecturer. Each time an interviewee fails to answer a question satisfactorily during the interview one mark will be deducted from the assignment mark. The final course mark is comprised of the combined assignment marks, unless the student chooses to participate in the written exam. In such a case, the exam mark and the combined assignment marks comprise the final course mark. In practice, most students successfully complete the assignments and indicate that they learn a lot from them.
  - André Kokkeler - Module coördinator module 5, Electrical Engineering & Technical Computer Science

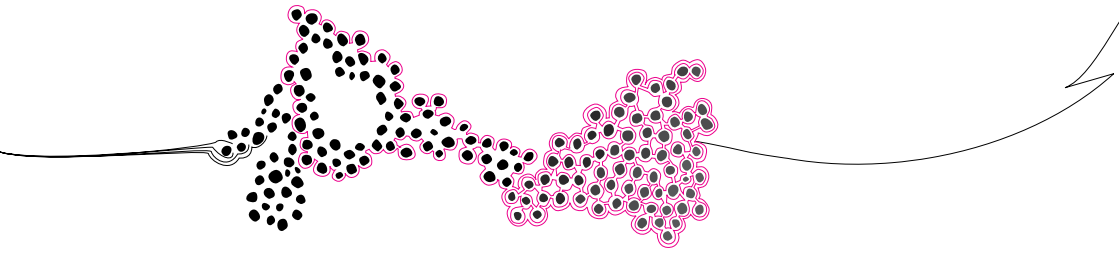
- In Atlas it is not so much freedom in planning that students have, they are responsible for their planning. This is central to the basic idea that Atlas students have ownership of their learning and consider how they want to realize the learning goals of program components (courses, projects, semester). So, instead of telling a student: "if you do this you learn that", we ask the student "what would you do to learn this?". The next question is what milestones are useful to receive feedback from teachers etc.. This means that students consider what feedback they need at what moment. For example in the project students make a planning of intermediate products and the feedback they need to continue. Being responsible also implies that students take into account the interests of teachers and not plan everything in the final week!
  - Fokko Jan Dijksterhuis - teacher University College (ATLAS)

- We wanted to give the students a great deal of freedom and responsibility over their learning. By translating the theory into eleven different practical 'tools' i.e. mini-lectures, and letting the students choose which tools to use , the modules allowed the students to gain experience and become acquainted with different areas of expertise. This method emphasized communication, but allowed the students to still experience a great deal of freedom. The students had to demonstrate their knowledge of the content of these tools in their projects. Each student was required to attend lectures and understand six tools, and together the group was responsible for understanding the content of all the tools. Between two and four students from the same project group could attend one tool lecture. By deploying the tools as expertise, communication was established and the students were able to work together towards a concrete goal.
  - Roy Damgrave - Module coördinator module 8, Industrial Design

STUDENT-DRIVEN TEACHING AND SUPERVISING

In the SDL programme, the student is responsible for his/her own learning. The goal of the programme is ambitious, but the student is carefully supervised and monitored by the lecturer, who adopts the role of a subject expert and/or learning process coach/ facilitator. In addition, the student learns how to self-regulate, and receives regular feedback on the learning material and process from the teacher and their peers. Furthermore, in an SDL curriculum, students and lecturers are considered partners in learning, and students are encouraged to discuss their personal learning objectives (over and above those set by the teacher) and plans for achieving these goals with the lecturer.

When deciding on the level of supervision needed, it is important to refer back to the trajectory set out at the programme level, to prevent large fluctuations in supervision methods. The safety net of intensive supervision decreases as students advance in their courses and throughout their degree programme. While the supervision decreases and contact lecture periods become non-compulsory (with the exception of, for example, practicals, where resources need to be used), students become increasingly involved in deciding what, when, and how they learn. Similarly, although students receive feedback less frequently from the lecturer, they learn to reflect on their choices, and are assisted by non-compulsory diagnostic tests and peer feedback to ensure that they stay abreast of their studies.



WHAT CAN I DO AS A TEACHER OR MODULE COORDINATOR?

When designing an SDL course or module which affords students greater freedom and more responsibility, teachers/module coordinators should consider the following:

LEARNING OBJECTIVES

Formulating learning objectives for the learning unit (i.e. at the module level in the Bachelor's degree, or at the course level in the Master's degree), makes it easier to facilitate Student-Driven Learning. The learning objectives should clearly indicate the knowledge and skills that students must acquire by the end of the module/course. To further facilitate SDL, students can formulate additional personal learning objectives complementary to the obligatory course objectives. Variation in teaching methods and the degree of freedom and responsibility afforded to students is of great importance within an SDL curriculum, and should be negotiated based on the subject involved. For example, some subjects require fixed or scheduled activities, whereas others allow a certain degree of flexibility for students. When designing a course or module which affords students the freedom to choose the learning activities, it is important for teachers to consider how these choices will be made and how to align these choices within the module.

Examples of how individual learning activity choices can be incorporated in the module include:

- Allowing students to decide if they want to complete a formative assignment individually or in a group
- Permitting students to choose whether they want to attend lectures, or to use the micro lectures or online tutorials (suitable for large groups of students)
- Allowing students to choose their preferred assignment type (based on pre-determined assignment options). With large groups of students, it is best to provide fewer options (i.e. two or three assignment options)
- Giving students a choice in how they are assessed and in demonstrating whether they have achieved/mastered specific learning objectives in the later stages of the programme (to be approved by the teacher). For example, students can choose whether to complete an assignment, take an exam, or write a paper about the topic, etc.

PROCESS & PRODUCT

Within a project or an assignment, freedom of choice can be manifested in different ways. For example, students may have freedom over the process in which they complete the assignment, or over the product they have to work towards. To ensure a proper balance between freedom and guidance, students should choose only one aspect over which they have control. For example, students are given either a clear framework for the process, or a specific reference as to what the end product should resemble. At a later stage in the curriculum, students can be afforded greater control over their own learning and be granted more freedom over both the process and the product.

TIME

Throughout the course or module, students will have increasingly more control over their time. Because fewer compulsory activities are scheduled, students are given more flexibility to plan and organize their learning. Due to the (physical and digital) flexible learning environment that is time and place-independent, students are able to increasingly direct their own learning

process. With the help of ICT (e.g. digital assessment methods and micro lectures), learning can become more flexible and time-independent. More information on digital tools and support can be found at www.utwente.nl/telt.

FEEDBACK

Giving regular feedback is an important task for the teacher in SDL programmes. Although students are encouraged to follow their own route in attaining their learning goals, it is important for them to know whether they are on track. Feedback can take multiple forms, including, for example, peer feedback. Digital tools and detailed rubrics can be used to guide peer feedback, which will also assist in lessening the teacher's assessment load, especially when classes are large.

LEARNING RESOURCES

Requiring students to search for resources and materials (both online and offline) is another effective means of implementing SDL, and is suitable for large groups of students. In conducting research or completing an assignment, students may be given the freedom to draw on resources suggested by the lecturer or they may be asked to find the resources themselves. This will enable them not only to become more self-sufficient in finding pertinent material, but also to become adept at critically reviewing resources. Where students are given the opportunity to source their own materials, it is important that the requirements for the material are made clear, and for the students to reflect on the quality of the materials found.

THE CURRICULUM

When designing a course or module, it is important to consider its placement in the curriculum as a whole, to ensure not only a logical trajectory for the content, but also the trajectory for student independence. Therefore, students need to be afforded the necessary time and space to develop into more independent learners. It is thus imperative to refer to the level of freedom and degree of responsibility given to students in the previous course or module, to ensure that the potential for development is sufficient. We thus encourage teachers to discuss their vision and methods with the entire teaching or module team, and to develop modules in line with the curriculum (and the other modules therein) as a whole.

GIVING REGULAR FEEDBACK IS AN IMPORTANT TASK FOR THE TEACHER IN SDL PROGRAMMES.

STUDENT-DRIVEN LEARNING AT A PROGRAMME LEVEL

A clear vision of how students' freedom and responsibilities increase throughout the curriculum as a whole is necessary to prevent situations where students may abruptly encounter large amounts of freedom without guidance in one study unit and stricter teacher-steering in a subsequent study unit, or vice versa. This is often the case with the transition from Bachelor's to Master's programmes. Therefore, programme directors and even the OLC have important roles in monitoring a logic 'line' of Student-Driven Learning throughout the programme.

The learning trajectory incorporating increasing freedom and control can only be integrated in the curriculum when students are provided guidance on how to act, i.e. how to acquire the necessary self-regulatory skills used, for example, in writing their own learning objectives, being responsible for their own learning, and reflecting on their learning. This can be realized through programmes such as skills workshops, tutoring, reflection, portfolio work, student career guidance, etc.

The table below indicates the various aspects of SDL (i.e. the what, how, and when) and provides examples of how SDL can be implemented and increased in a programme. It also suggests guidance and assessment methods.

ASPECT	INCREASING FREEDOM AND CONTROL
WHAT TO LEARN? Learning objectives and content 	Students may add personal objectives (i.e. academic skills). Students may add related content objectives. Students may determine most of the objectives and content (theory, vision, model, method, formula) for an educational unit.
HOW TO LEARN? Learning activities and materials 	Students may choose and organize supplementary activities and materials (i.e. a guest lecturer) to enhance their learning. Students may search for and collect resources, determine and evaluate their relevance, and organize the materials to be used for an assignment. They may also determine the activities to be used in achieving the learning objectives.
WHEN TO LEARN? Time and date 	Some learning activities may be strictly scheduled and compulsory (e.g. in the case of learning practical skills). Other learning activities may be flexible and scheduled by students according to personal preference. In such a case, the curriculum will only specify the activities to be completed and their deadlines within the fixed ten week period.
WHAT SORT OF SUPPORT? Guidance 	The lecturer and student are partners in the learning process. At the beginning of the study unit, students discuss with the lecturer what they want to learn, and how they intend to achieve their goals, and what type of guidance they need. This is only possible in individual and small-group work.
HOW TO DEMONSTRATE? Assessment 	Students can choose to take several scheduled summative module tests or to take one major test upon completion of the educational unit. In case of digital testing, students can determine themselves when they will take the test. Students are largely responsible for proving how and when they have achieved personal learning objectives.

STUDENT-DRIVEN LEARNING FROM A STUDENT PERSPECTIVE

What do students think about Student-Driven Learning? What aspects of the course or module do students prefer to have more freedom or control over? A small group of students from several programmes formulated a set of guidelines for Student-Driven Learning modules/courses.

ACCORDING TO STUDENTS, SDL MEANS:

- Being able to make mistakes and learning from them without significant consequences for the progress of their study programme
- Having the space to develop themselves as professionals and as humans
- Being able to focus on specific aspects of the study programme content
- The possibility of planning their own learning schedules
- Creating their own additional learning goals (with support from the teachers)
- Choosing the learning style and activities that fit their way of learning

TO MOTIVATE STUDENT-DRIVEN LEARNING, TEACHERS COULD:

- Trust students to take responsibility for their own learning
- Try not to act as an authority figure
- Give feedback instead of 'checking' work
- Be flexible and open to feedback from students. Suggestions regarding the course or module plan from students may be beneficial for future course development
- Be open to individual or alternative solutions, co-decided by the student, on how to repair unsatisfactory work for individual cases in an informal situation (although students realize that this may not be possible for all teachers and would be based on the teacher's discretion and the issue at hand)

STUDENT-DRIVEN PLANNING

- Compulsory learning activities do not always encourage confidence – students should be given responsibility for their own learning and academic development
- Not all students learn the same way. It is important to understand that those students who do not attend contact lecture periods are not disinterested; they may just have different needs for learning. Do not punish the absent students, but continue to encourage and motivate those who are present and who need instruction
- Students like to be given the freedom to plan their learning, and to decide how much time to devote to different learning activities. The schedule could therefore be made more flexible with voluntary learning activities and 'free hours' to spend on activism or relaxation for those students who prefer to study after-hours
- Provide time during which students may 'repair' unsatisfactory work. Students see potential for a 'repair week' during the summer vacation

DO YOU WANT MORE SUPPORT IN IMPLEMENTING SDL?

The educational advisors of the Centre of Expertise in Learning and Teaching can support you in using SDL as an educational concept in your programme, module or course. Contact the educational advisor in your faculty or contact CELT (celt-ces@utwente.nl).

CELT offers courses for teachers who are interested in more advanced SDL.
www.utwente.nl/celt

REFERENCES

Blaschke, L. M. (2012). Heutagogy and lifelong learning: A review of heutagogical practice and self- determined learning. *The International Review of Research in Open and Distributed Learning, 13(1), 56-71.*

Cloninger, C.R., Svrakic, D.M., Przybeck, T.R. (1993). A psychobiological model of temperament and character. *Arch Gen Psychiat 50(12):975–990.*

Deci, E. L., & Ryan, R. M. (2002). Handbook of self-determination research. University Rochester Press.

Lee, E. and Hannafin, M.J. (2016). A design framework for enhancing engagement in student-centered learning: own it, learn it and share it. *Education Tech Research Dev, 64:707-734.*

Moesby, E. (2002). From pupil to student – a challenge for universities: An example of a PBL study programme. *Global Journal of Engineering Education, 6(2), 145-152.*

Niemiec, C.P. and Ryan, R.M. (2009). Autonomy, competence, and relatedness in the classroom. Applying self-determination theory to educational practice. *Theory and Research in Education, 7(2), 133-144.*

University of Twente, (2014). *Vision 2020, Innovate, Experiment, Pioneer.* Retrieved from: https://issuu.com/utwente/docs/14337_brochure_vision_2020_eng

Weimer, M. (2002). *Learner-centered teaching: Five key changes to practice.* San Francisco, California: Jossey-Bass.

Zimbardo, P.G., Butler, L.D. & Wolfe, V.A. (2003) Cooperative College Examinations: More Gain, Less Pain When Students Share Information and Grades. *The Journal of Experimental Education. 77(2), 101-125*

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