Maastricht University

EDLAB

Fostering self-regulated learning at Maastricht University

Insights from educators and literature

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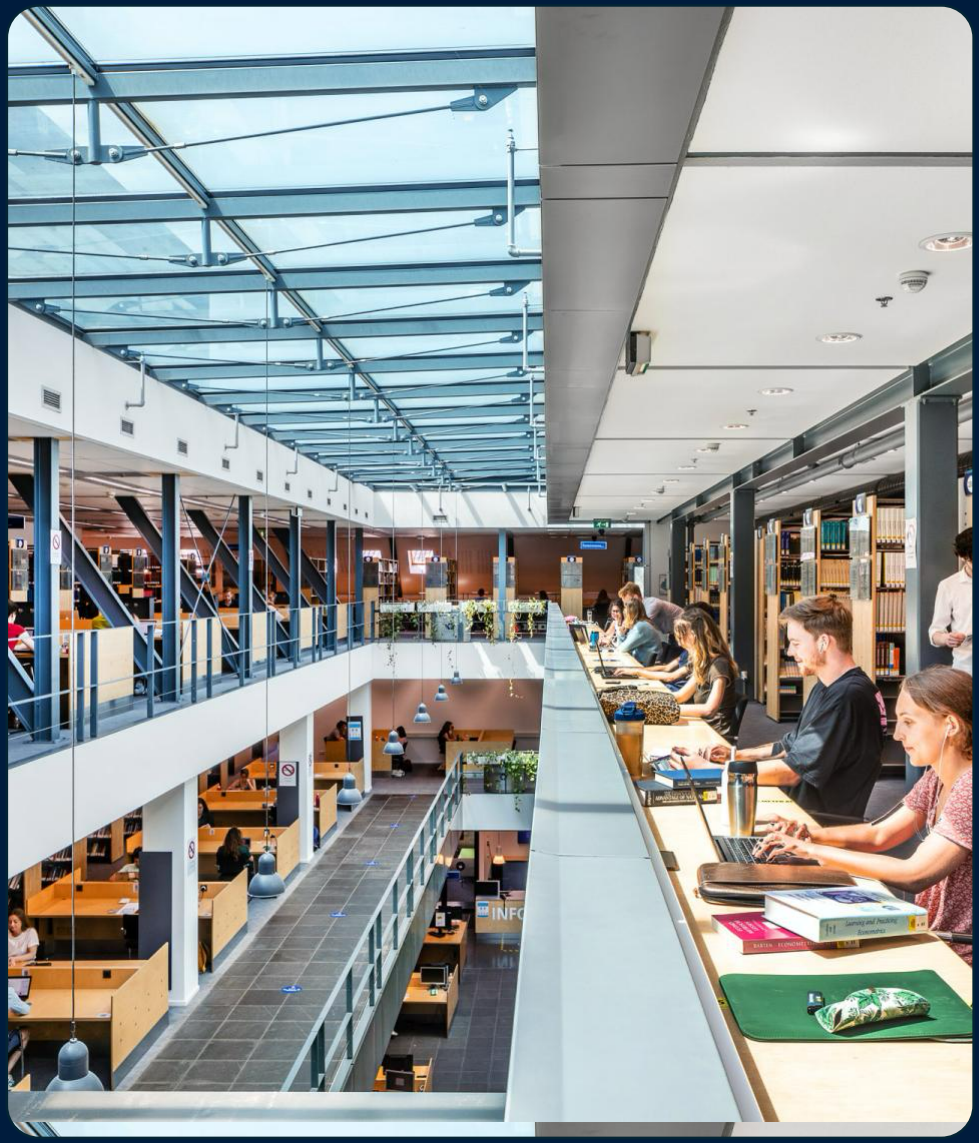


This collection of self-regulated learning (SRL) experiences at Maastricht University (UM) aims to inspire educators (you) to explore SRL, understand its connection to UM's Problem-Based Learning (PBL) system, and access resources to dive deeper into the topic.

It highlights SRL practices from UM staff members and shares insights from teachers, coordinators and student guidance staff who have actively integrated SRL support into their teaching and learning approaches. This collection is designed for anyone interested in deepening their understanding of Self-Regulated Learning (SRL). Throughout this resource, when we refer to "you", we mean anyone involved in teaching or supporting learning in any capacity. Self-regulated learning (SRL) is embedded in UM's pedagogy and is a key element of PBL principles, which are built on contextual, collaborative, constructive, and self-directed learning. This collection explores how SRL connects to PBL, why supporting SRL is essential, and showcases examples of SRL integration in education. We also highlight important considerations for implementing SRL support in your teaching practice.

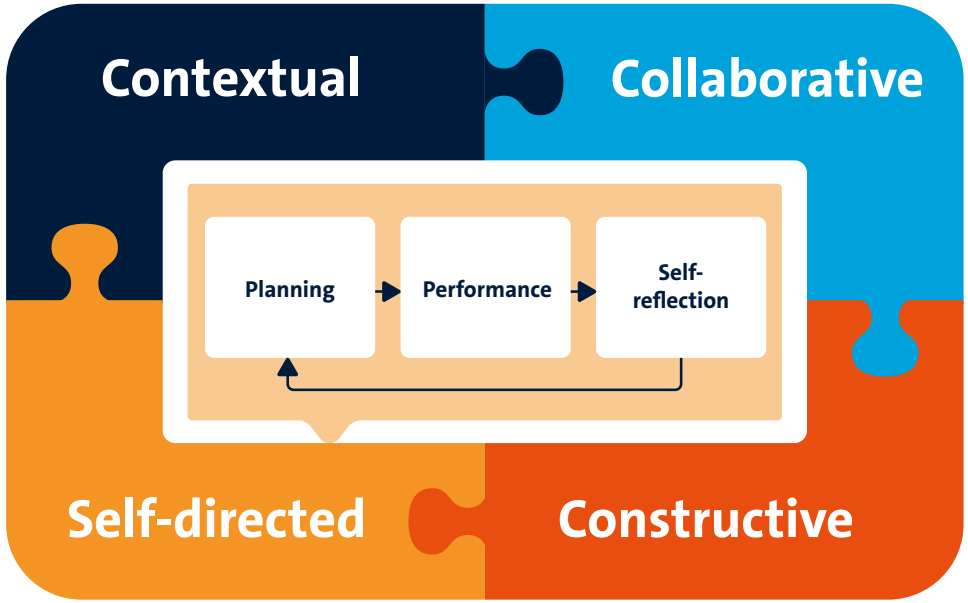
This collection provides basic understanding of SRL and demonstrates how minor changes in your teaching can help develop students' SRL skills. It is designed to spark curiosity and encourage you to experiment with new approaches. If you are looking for a detailed step-by-step guide to designing or integrating SRL support, scan the QR code on the right or click here to access a CANVAS module that walks you through the process.

Self-regulated or self-directed?

Self-Regulated Learning (SRL) focuses on how students plan, monitor, and regulate their learning within a structured environment, like completing assignments, preparing for exams, or engaging in classroom activities. It involves managing one's cognitive strategies, motivation, and behaviour to meet course objectives.

Self-Directed Learning (SDL) zooms out. It emphasises learner autonomy across a learning journey, beyond a single course. This might mean seeking out extra resources, designing an independent study, or pursuing personal interests outside the classroom. It calls for a higher degree of independence and is closely tied to intrinsic motivation and lifelong learning.

In short, SRL helps learners thrive within a course. SDL helps them navigate their learning beyond it.



How was this collection created?

This collection of experiences and practices is the result of an innovation project initiated by EDLAB, Maastricht University's Centre for Teaching & Learning. The project "Supporting self-regulation skills for lifelong learning" aims to deepen our understanding of self-regulated learning (SRL) and develop a framework that enables UM staff members to integrate insights from both research and good practices at UM into their teaching. This project intentionally explores SRL within the CCCS context to investigate its application at UM and beyond.

Self-regulated learning support can take many forms. To better understand which approaches are most effective in a CCCS context, we examined research studies, while collecting practical insights from UM teaching staff. This project followed a two-fold approach:

1. *Conducting a literature review, including a meta-analysis, to identify the most effective SRL support in a CCCS context.*
2. *Organising focus groups to gather good practices and insights from UM staff (we conducted one focus group with educators at each faculty).*

Rather than offering a detailed summary of the literature, this collection focuses on key insights, experiences, and lessons learned from the UM community. For more information on the literature review and scientific evidence, look out for our publication on this topic!

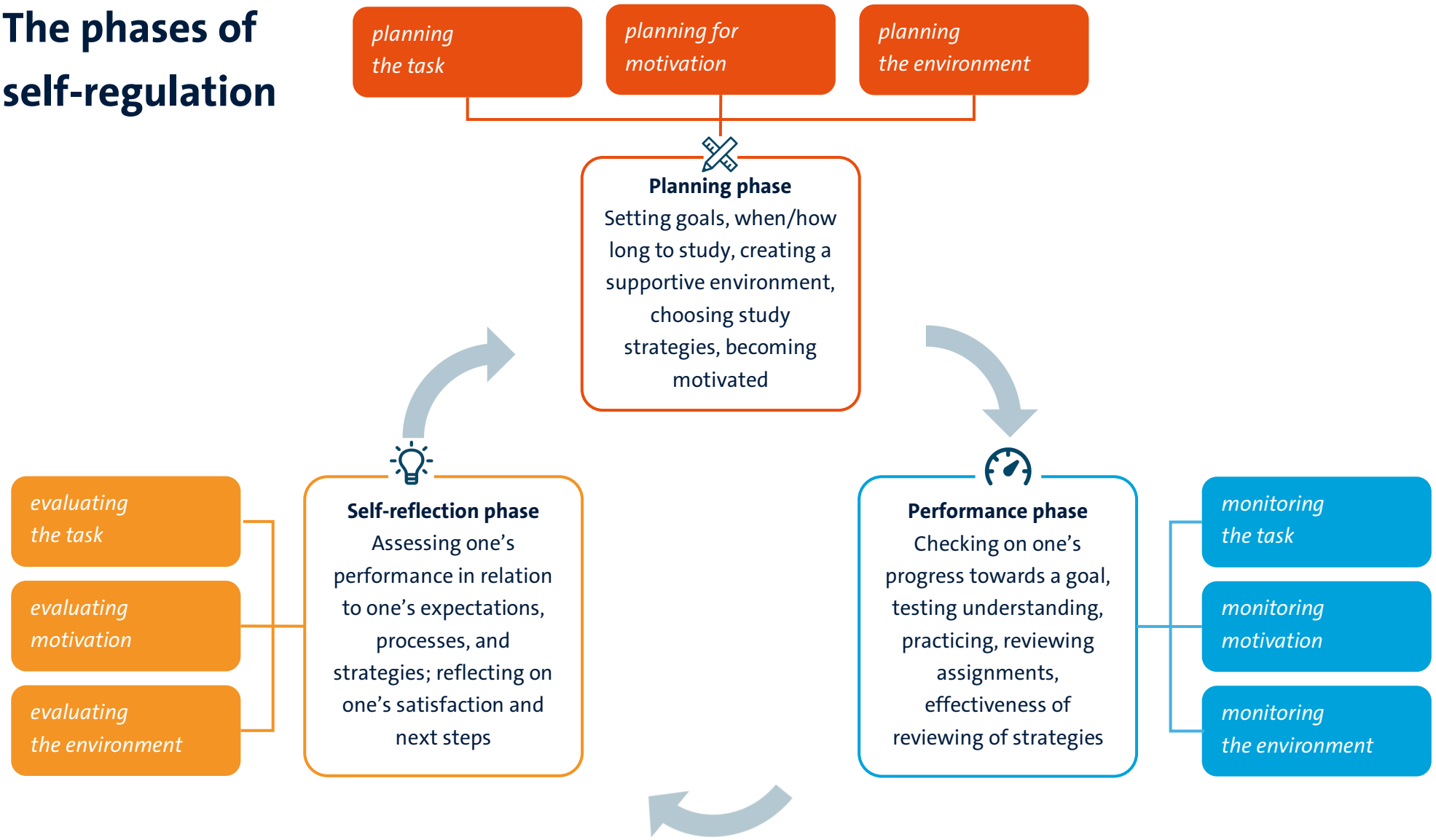
What is self-regulated learning?

Self-regulated learning is a process in which students plan, monitor, and reflect on their understanding, study behaviour, and motivation to achieve their learning goals. Most models of SRL include three phases that students move through as they learn and study.

We base our approach on the Zimmerman model (Zimmerman, 2002), which identifies SRL as a cyclical process with three phases: the planning phase, the performance phase, and the self-reflection phase. Students repeatedly go through these phases during their courses and programmes. Throughout the process, students use various strategies to monitor and regulate their learning. These study strategies fall into three main categories: cognitive strategies, metacognitive strategies, and resource management strategies. You can explore these further in the graphic below. For more detailed information, visit our Canvas module

In the research literature, various terms are used to describe these phases. For simplicity, we focus only on the phases outlined by Zimmerman.

The phases of self-regulation



Where do SRL and PBL meet?

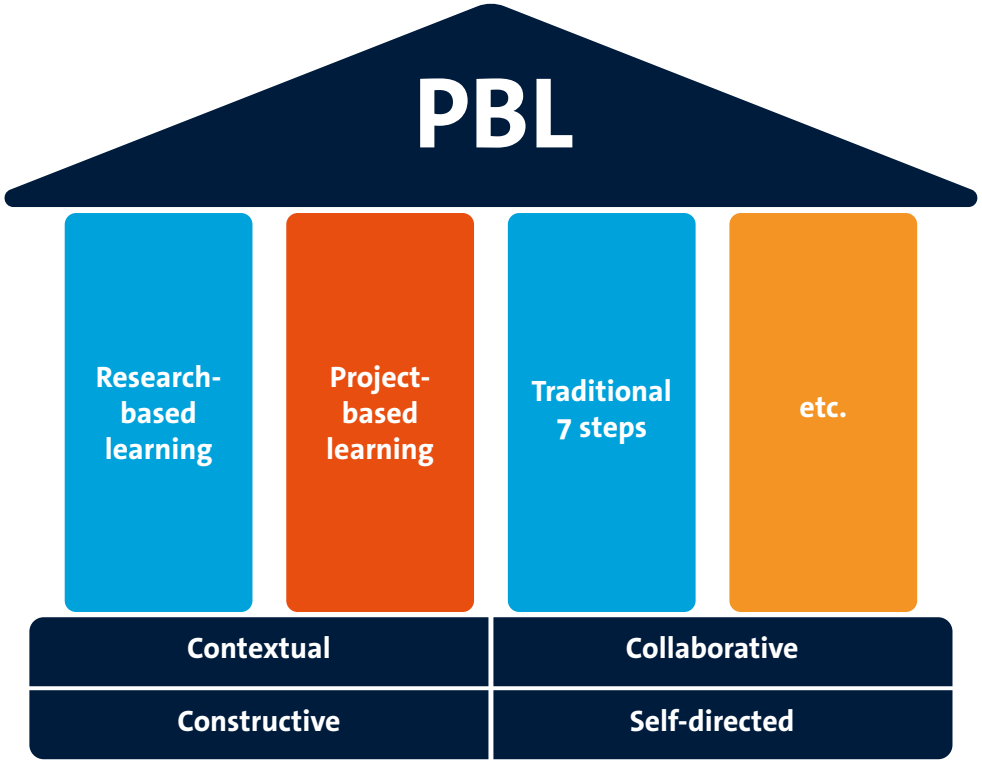
The connection between SRL and PBL extends beyond the self-directed aspect of the CCCS principles. UM staff recognise a strong link between SRL and PBL and see them as closely intertwined. The focus groups highlighted several key connections but also discussed the challenges of integrating SRL support into each tutorial.

Planning phase
The planning phase, involving goal setting, receives attention in our PBL sessions in discussing and setting learning goals.

Performance phase
During the focus groups UM staff highlighted that the post-discussion of PBL could be seen as being part of the performance phase. However, the time between tutorials (the independent studying part of PBL) was also discussed to be part of that stage. Some participants saw the post-discussion as a valuable opportunity for reflection on study materials, rather than focusing on the content itself.

Self-reflection phase
Throughout the course, educators observe improvements in students' SRL skills. However, the self-reflection phase was found to be lacking in many PBL tutorials. The structured nature of the 7-step process in some PBL formats was seen as potentially limiting students' ability to self-regulate, as it reduces uncertainty and offers too much structure.
To effectively support the development of self-regulation skills, participants emphasised the importance of taking a broader, curriculum-level approach to address SRL skills across the programme, rather than focusing solely on SRL within PBL tutorials.

The whole cycle
UM staff identified mentoring programmes as environments that fully support the SRL cycle, providing activities that encourage goal setting, skill development, and reflection.
Timing, specifically regarding which part of the SRL cycle occurs within the PBL structure, emerged as a critical factor. Participants emphasised the importance of each SRL phase within the PBL tutorials and proposed incorporating moments of self-reflection in every tutorial session as a valuable practice.



The role of the tutor

The tutor was seen as crucial in facilitating the entire SRL cycle, with their active engagement considered essential for providing effective support. Participants suggested expanding the pre-discussion phase to include not only goal setting but also discussions on strategies for achieving those goals, such as reading course literature or conducting research.

Overall, the discussions highlighted the importance of integrating the three phases of SRL into the PBL framework and the need to foster self-regulation skills at both the curriculum and course levels, rather than focusing solely on one tutorial, to enhance student learning experiences and outcomes.

Why is supporting SRL important (snipped from the literature review)?

"Among the many skills and competences that higher education aims to foster in students, self-regulated learning (SRL) is rapidly gaining priority. Competent self-regulated learners can proactively plan and direct their learning towards a learning goal, use personal learning strategies, self-monitor progress and strategically adapt study behaviour (Panadero, 2017; Zimmerman, 2002). The ability to self-regulate one's learning is an important predictor for study success (Gandomkar et al., 2016), student well-being and confidence (Pekrun et al., 2002).

In many institutions of higher education, preparing students for life-long learning is a major policy focus. Contemporary academic work settings require professionals to keep up with the many new developments in their respective fields. Life-long learning largely relies on SRL, such as monitoring own professional performance and learning needs, and self-regulating continuous learning (Campbell et al., 2010; Drude et al., 2019). In addition, the COVID-pandemic, during which students were relying on themselves for individual learning for a longer period, proved the urgency of effective SRL skills (Liebendörfer et al., 2023; Mou, 2023). Lastly, the growing flexibilization of higher education, mainly due to technological advancements, raises the need for students to develop adequate SRL skills (Bergamin et al., 2012) to effectively and efficiently navigate their curriculum and learning environment.

It is however self-evident that students are not spontaneously capable of adequately taking control over their learning (Gandomkar et al., 2016; Zimmerman, 2002). Even in student-centred approaches like Problem-Based Learning (PBL), students often do not learn the necessary skills to regulate their learning successfully (Rovers et al., 2018). Therefore, effective instructional design plays a significant role in fostering the development of SRL skills by providing learners with appropriate tools, strategies, and support. A recent meta-analysis showed that extended SRL training programs can successfully foster academic performance, SRL strategies and motivation in university students (Theobald, 2021). Self-regulation skills only develop, however, when direct, explicit attention is dedicated by teachers to the continued awareness and training of these skills in students (Dignath & Veenman, 2021). Building on this, the aim of the current systematic literature review and meta-analysis was to further examine existing instructional design practices that foster SRL on an individual level and to gain more detailed insight into the learning mechanisms that support SRL skill development in higher education. "

Tip: *If you are curious to read more about the scientific evidence for supporting SRL, read our literature review.*

Figure 1: SRL in tutorials

What do UM educators do to support SRL in students?

The following chapter presents a collection of experiences and insights from UM teachers, mentors, and advisors. We conducted focus groups at each faculty and invited UM staff to share their practices with us and the wider UM community. The goal was to gather examples from educators, course coordinators, programme coordinators and study advisors on how they support SRL in their students. To make the numerous examples easier to understand, we grouped them into categories based on teaching format, such as direct contact with students, course design and curriculum design. Each category includes a brief description of the context, the corresponding SRL phase, who provides the SRL support, educational level, the intentions or learning outcomes, the core activity and, if applicable, assessment. We also added links to research articles that investigate similar practices. If you are interested in the education research part of SRL, check out the articles. This collection aims to inspire you to incorporate SRL support into your teaching practice. We encourage you to explore the different practices and consider how you might apply SRL strategies in your own practice starting tomorrow.

Tip: *If you want not only to be inspired but also take action, check out our step-by-step guide - click the link.*

Legend

Categories	Explanation
Context	Description of the context the SRL support takes place in, e.g. Thesis supervision
SRL-phase	Description of the SRL phase (based on Zimmermann) this practice is targeting
Who provides the support	Description of the role that executes the practice
Education level	Is the practice intended for bachelor or master students?
Intention/intended learning outcomes	Description of the intended learning outcomes and aims of the practice
Content/activity	Summary of the core activities
Links to research	Links to research articles that support/describe the practice in more depth

Let's get inspired – what do educators do to support SRL at UM?

Teacher, mentor, advisor in direct contact with students

Context	One-on-one contact with students (mentoring or advising), thesis supervision
SRL-phase	Planning, performance, reflection
Who provides the support	Teacher, mentor, advisors
Education level	Bachelor and master
Intention/intended learning outcomes	Improve SRL in students
Content/activity	**Practice 1**: Support students in planning their learning activities by starting the conversation with "What do you already do?" After gathering their current learning activities, work together with students to identify changes they can make based on their goals (e.g. passing an exam, achieving better grades, scheduling regular study sessions, etc.) **Practice 2:** Ask students to track their learning activities (e.g. in a learning diary or calendar) and reflect on them during the next meeting. This helps them strengthen their reflection and performance skills. **Practice 3:** Encourage students to write a reflection of their learning experience (e.g. successes, failures, surprises, and insights) and discuss it during the next meeting. **Practice 4**: writing exercises as input for individual meetings Before a meeting, ask students to complete a short writing exercise reflecting on a goal, experience, or plan. This serves as a conversation starter to reflect on the learning experience. It also allows for follow-up questions such as "Where do you see yourself in five years? What do you want to learn in the next few months? What do you want to work towards?" These questions can then help students to set goals. Important note: Do not let students just reflect: work together to create an action plan. Self-regulated learning is a cyclical process and each stage is important. Often, after reflection, we forget to set concrete action plans based on the insights gained. Help your students complete the SRL cycle by addressing all stages.
Links to research	• Learning diaries and SRL training by (Dörrenbächer, 2016) • Learning diaries supporting meta cognitive skills by (Ewijk van Dignath et al, 2015)

Examples of practices in mentoring - curriculum level

Context	Mentor systems across the university
SRL-Phase	Planning, performance, reflection
Who provides the support	Mentor
Education level	Bachelor
Intention/ intended learning outcomes	Supporting students in developing skills in reflection, planning and setting goals for oneself.
Content/activity	**Practice 1**: structurally embedded portfolio A portfolio is integrated into the curriculum as part of the mentoring trajectory with ECTS credits and a (pass/fail) assessment. Students use the portfolio to reflect on their goals, ambitions and learning process. For example, in an SRL-supportive mentor programme, students complete a writing exercise in their first year, answering questions like: "Why did you choose your studies? What are you doing to learn/study? How will you plan your work?" Then students execute their plan and discuss the experience in a follow-up meeting: How did it go? What went well, what did you struggle with? This exercise can include feedback and reflections from courses students take. **Practice 2**: diversifying the mentor sessions Mentor sessions can take different forms, from individual conversations to practical skill classes on effective study strategies (e.g. Study Smart) and mentor group meetings where students share experiences with peers.
Assessment	The portfolio might be assessed (pass/fail). Students' progress is assessed using clear rubrics.
Links to research	• Web-based SRL training including peer-feedback by (Bellhäuser et al., 2016) • E- portfolio combined with SRL training by (Alexiou & Paraskeva, 2020)

Self-testing on course level

Context	Self-testing during the course
SRL-phase	Performance and reflection
Who provides the support	Course coordinator
Education level	Bachelor and master
Intention	Students will master course content and develop time management skills. Students will actively engage with the course content over the education period (not only before the exam)
Content/activity	**Practice 1:** self-assessment for students during the course. They can use it independently and as often as they like. The questions may be based on past exam questions or created by other students. **Practice 2:** Weekly graded quizzes that students are required to complete. Next to these, practice quizzes are available for students to use. At the end of each quiz, students estimate their score before seeing their actual performance. Students can use this information to adjust their study strategies for the exam. **Practice 3:** Introduce self-testing in tutorials by incorporating weekly quizzes during tutorials. Students can create their own questions and present them to their peers.
Assessment	No formal assessment. These self-assessments provide students with feedback throughout the course and support their exam preparation.
Links to research	• Implementing a checklist procedure to support self-reflection and level of engagement in practicing by (Cremaschi, 2012) • Practice testing by (Fernandez & Jamet, 2016)

Variations of assessment to support SRL

Context	Assessment in a course or practical
SRL-phase	Planning, performance, reflection
Who provides the support	Tutor, mentor, and advisor
Education level	Bachelor and master
Intention	Creating authentic assessments, reducing high-stake assessment moments
Content/activity	**Practice 1**: Authentic assessment. Design assessments that are close to practice and real-life applications. For example, in maths education, students might compute the number of drinks needed for a party; in medicine, students could create videos depicting medical scenarios, with assessments focusing on professional behaviour and knowledge. **Practice 2**: Instead of a single final assessment, students complete multiple assignments throughout the course. This could be weekly tests where students showcase what they learned. The course has two types of deadlines: a hard deadline at the end of the course, by which the student must have passed all the weekly quizzes, and a soft deadline at the end of each week. Students can request an extension on the soft deadline by simply informing the course coordinator by email (no explanation required); students can take the quizzes multiple times but must achieve 80% on all quizzes to pass the course; all quizzes have multiple versions with different variations of questions.
Evidence- informed	• Peer-assessment a support students in reflecting on own performance by (Kim, 2005) • Authentic learning compared to traditional learning can support SRL skills by (Hursen, 2015) • Weekly Assessments and Learning Diaries by (Joseph-Edwards, 2019)

Sharing knowledge about PBL and SRL in the classroom

Context	During tutorial sessions or when setting up/restructuring a course
SRL-phase	Planning, performance, reflection
Who provides the support	Course coordinator, tutor
Education level	Bachelor and master
Intention/intended learning outcomes	Knowledge about why we do PBL, PBL skills
Content/activity	**Practice 1**: make PBL explicit by taking the time to explain the course structure. This could be in the first lecture or tutorial. Make explicit why discussions are necessary, the purpose of time between tutorials, what is expected in the post-discussion, etc. **Practice 2**: Teach students to deal with not having the right answer; intentionally walk through the SRL cycle; start with a pre-discussion: What do we know, what do we not know? Start visually drawing connections between topics; then let students self-study or study in groups; back in the tutorial, students answer the pre-discussion questions. Reflect on: What did they learn? Did they find the answers to what they didn't know? How did they approach finding the answers? What questions remain? And how can they address them? Emphasise that not knowing is part of the learning process. **Practice 3**: Introduce meta-PBL-learning moments. If something works well (or does not) in a tutorial, pause the PBL discussion to reflect on why. This helps students better understand the PBL process and develop their reflection skills. **Practice 4**: Encourage deeper reflection during tutorials by asking questions, like "What have we learned today?" instead of only focusing on the learning goals. This can activate the tutorial discussion and enhance reflection.
Links to research	• Knowledge of SRL integrated into a course can support retention rates by (Bol et al., 2015) • Integrated metacognitive training into a writing course by (Nguyen & Gu, 2013)

Different practices in the PBL classroom

Context	In PBL settings: variations in tutorial set ups and course structure
SRL-phase	Performance, reflection
Who provides the support	Tutor
Education level	Bachelor and master
Intention/intended learning outcomes	Creating space for SRL in the classroom
Content/activity	**Practice 1**: Chairing responsibilities in tutorials; each tutorial has a student chair who prepares the course materials and chairs the tutorial, animates the discussions, asks questions, etc); students and the tutor provide feedback at the end of the session, help the chair to improve their chairing skills. The chair also reflects on the performance/contributions of the whole group. This practice mirrors the SRL cycle by encouraging the chair to plan, monitor and reflect on the tutorial. **Practice 2**: Point system for literature. The literature list indicates different difficulty levels. None of the materials are directly assessed in the exam. This allows students to choose what to read and at what level. **Practice 3**: Course co-creation. Before the course starts, students collaboratively decide course reading list and determine the weighting of the assessment. **Practice 4**: Creating time for reflection. This could involve rearranging topics or cutting out tasks by replacing a content session with a feedback session, or adding in moments to reflect before or after the tutorial session (arriving 10 min early) **Practice 5**: One-problem-a-day approach: PBL without tutorial meetings. The sessions start with a lecture, followed by team assignments. After one hour of teamwork, student teams return to the lecture hall to present what they have learned, how they approached the assignment, etc. Depending on the students' insight/answers to the assignment, provide students the teacher's solution and explore why the assignment is difficult, what the teams struggled with etc. After four weeks, students take a self-test in teams to reflect on their learning progress. The final practice exam at the end of the period allows students to compare their results and assess their development. **Practice 6:** Introducing plenary reflection sessions. Plenary sessions (like lectures) after tutorials allow students to discuss remaining questions, and what they have learned, and reflect on the tutorial process.

Supporting study skills in students

Context	Programme, workshops, tutorials, individual meetings
SRL-phase	Planning, monitoring, reflection
Who provides the support	Mentors, advisors, teachers
Education level	Bachelor and master
Intention/intended learning outcomes	Supporting SRL skills, scaffolding, supporting study skills; reflection on studying/preparing for tutorials
Content/activity	**Practice 1:** Study Smart programme (in the curriculum as part of a mentoring system or courses). **Practice 2:** Learning skills training (lecture for all students, workshop), giving them resources to learn about learning
Links to research	• Study Smart is an evidence-based study strategy programme by (Biwer et al., 2022) • Optional learning and study skills course can improve in class activities of students by (Hanghni & Sadeghiyadeh, 2011)

What do educators consider when creating SRL support for students?

During the focus groups, we collected a wide range of insights from UM teaching staff on supporting self-regulated learning. The insights fall into four main categories: *Communication and expectation management, possible difficulties for educators and students, the role of scaffolding, and assessment.*

Communication and expectation management

When implementing SRL-supportive practices, UM staff highlighted the importance of the following aspects.

Making expectations explicit: clearly communicating what is expected and why SRL matters. This includes explaining the learning process and how SRL supports their development.

Setting clear standards: providing students with clear guidelines, examples or rubrics helps them understand what is expected and how to meet minimum requirements.

Building personal connections: engaging with students on a personal level, for example, by sharing personal stories or experiences from university helps to establish connections and build mutual understanding.

Honest and reflective communication: creating an open dialogue where students feel comfortable discussing challenges and receiving feedback supports their learning process.

Key takeaways:
Clear communication about expectations and the purpose of SRL helps students better understand and engage in the activities. Setting standards or baselines helps students adjust their expectations and strengthens communication between students and educators.

Possible difficulties for educators and students

Educators' perspectives

In this section we summarise the challenges educators face when integrating SRL-supportive practices into their courses, curricula, or advising/mentoring/teaching activities. When introducing a new SRL practice, be mindful of these potential obstacles.

Balancing support and independence
Participants acknowledged the challenge of balancing support for students while allowing them to develop self-regulation skills. Another challenge is between teaching subject-specific knowledge based on curriculum requirements and fostering self-regulated learning skills. Self-regulated learning can be learned and taught but needs support. At the same time SRL needs to be learned in a specific context. Thus, integrating it within tutorials or other teaching and learning activities is recommended. One practical approach is to schedule short reflections at the end of tutorials, as well as allocate time for pre-discussions and setting learning goals. These activities not only support SRL but also help deepen students' understanding of the subject matter. A simple method is to ask students what they have learned in the tutorial.

Behaviour and attitudes
Participants noted that educators often overestimate their own influence and while underestimating the role of peers in shaping students' self-regulated learning. Educators also reported an increase in student struggles, which in turn puts pressure on them to provide more support.

To address this, educators recommended encouraging peer support, especially in setting study plans, sharing study experiences and preparing for exams.

Assessment challenges
Participants highlighted the difficulty of evaluating and assessing self-regulation, as there is no direct metric or standardised assessment. As a result, educators often integrate SRL support into their courses without formally assessing specific SRL skills.

Teaching roles and challenges
Some educators assumed that what worked for them as students would work for their students, overlooking the fact that they likely represent a small group of high-achieving individuals. Young tutors, in particular, may find the PBL system challenging due to the flexible nature of tutorials and the varying needs of tutorial groups. Adding SRL support on top of this might feel overwhelming. Participants also pointed out differences in motivation and commitment between professors who are required to teach and lecturers who actively choose to teach. This distinction can impact their approach to supporting self-regulated learning. Additionally, educators mentioned feeling pressure when course evaluations were either too low or too high, as this could lead to potential consequences from the Education Programme Committee or Board of Examiners. This made them more hesitant to make changes to their courses.

Structural and logistical challenge
Educators indicated time constraints as a challenge in developing their courses and incorporating SRL support effectively. Educators struggled to attend training sessions on self-regulated learning or problem-based learning (PBL) due to their workload. Furthermore, contract issues emerged as a concern, with skilled tutors leaving every two years due to a lack of permanent positions. Additionally, administrative tasks, such as managing spreadsheets, were seen as frustrating distractions from focusing on supporting self-regulated learning. Increasing student numbers further complicate these challenges, making it harder for educators to ensure consistency and equitable SRL support across different groups. These structural and logistical challenges are addressed in the last section of this guide, which includes a call to action. Despite these obstacles, focus group participants found ways to integrate SRL support into their practice.

Students' perspectives

Below are common obstacles students may face when engaging in SRL and tips on how to address them.

Expectations and background
Some students expect to be taught how to learn rather than take ownership of their learning process. First-year students, in particular, may struggle with adjusting to a new city, transitioning from high school, and adapting to the university environment. These factors can make it difficult for them to fully engage in the self-regulated learning cycle. A simple way to manage expectations is to include a brief explanation of the SRL cycle and strategies in the course manual, or lecture slides and discuss expectations at the beginning of the course.

The SRL cycle
Students may skip certain steps of the self-regulated learning cycle, focusing more on planning and performance in their progress while neglecting reflection. However, excessive regulation can lead to feeling overwhelmed and stuck. Make the full SRL cycle explicit by linking course/programme/etc activities to its stages. Encourage students to connect course/mentoring/programme activities to the various stages of the SRL cycle.

Study skills and behaviour
Students struggle with handling extensive reading materials, taking notes, learning effectively, or identifying essential information. Some students hesitate to seek help from study advisors or mentors because they believe they are the only ones facing challenges. Others tend to rely on asking instead of looking up information independently. Both types of students may lack adequate study skills, including reading comprehension, information seeking, and study strategies. Students may not fully grasp or recognise the importance of reflection in their learning process. While some students enjoy reflection, others find it challenging and may postpone it. Students may engage in reflection and portfolio activities primarily to meet course requirements and fulfil mentor or educator expectations. Some students only start reflecting after experiencing setbacks, such as multiple failed exams. Some students are comfortable with who they are and do not see the value in reflecting on their learning process.
Peers can play a crucial role in supporting SRL by helping each other structure their day, establish study routines, and provide insights into what is considered normal or effective in their learning practices. Peers serve as role models for self-regulated learning behaviours, inspiring other students to adopt effective study habits and strategies. Address the challenge of heavy reading loads in class and remind students that university is where they learn how to manage these demands.

Fears and uncertainty
Students experience various pressures, such as financial, career uncertainty, and parental expectations, which can lead to a fear of failure. This fear can hinder their ability to take risks and explore alternative approaches to learning. Open-ended assignments or tasks without a single correct answer can feel unsettling and some students may struggle with impostor syndrome, feeling inadequate despite their achievements and doubting their abilities. The uncertainty inherent in the university environment can leave some students feeling overwhelmed, making it challenging for them to engage in self-regulated learning effectively.
Help students manage these uncertainties by explaining that PBL is an intense and active process when when for those used to lecture-based education. Clarify why PBL is used and how it supports SRL.

General tips from educators
- Avoid treating students like children: setting the right expectations from the start helps their transition to university and the development of SRL skills.
- Encourage students to seek help: indicate in the course manual that study advisors are available for academic or study skill support
- Communicate that struggling is part of the university experience
- Refer students to the Study Smart programme to improve their study strategies
- Reinforce that learning how to learn is a skill and takes time: students need space to figure out what works best for them
- Use peer monitoring: students often find it more helpful to monitor progress and learning with peers rather than relying solely on teacher monitoring.
- Adjust your expectations: not all 18-year-olds have fully developed reflective abilities. Expecting deep reflection from all students may be unrealistic solely based on brain development.
- Encourage student connections: study rooms, communal areas, and lecture halls can foster peer interactions and support.
- Prioritise exchanging experiences and insights over sharing tools or study materials: discussions about learning processes are often more valuable than simply providing resources.

Key takeaways:
As an educator, you may encounter obstacles when implementing SRL support, but these can often be addressed and managed with the right strategies. When integrating SRL support in your practice, refer to the

practice section of this guide or visit our CANVAS course for guidance. Students might struggle with various aspects of SRL. Clear expectation management, communication, and referrals to resources like Study Smart can provide valuable support. Mentors, study advisors and peers can play a key role in supporting student learning and helping them develop self-regulation skills.

What is the right amount of scaffolding?

"There's this sort of paradox and that all learning is self-regulated. Right? I mean, like, toddlers. They're learning things. They don't listen to you. They're learning the way that they're gonna do it"

How do UM tutors approach scaffolding?
Tutors play a crucial role as role models for self-regulated learning behaviours, helping students develop effective learning strategies. However, their role can sometimes be unclear, requiring careful consideration of how best to support SRL in the classroom. Tutors can provide step-by-step guidance (see the CANVAS module for more details) to help students understand their learning process, clarify expectations, and reinforce that student - not tutors - are responsible for their learning. Effective scaffolding requires a delicate balance between providing guidance and being overprotective and overly accommodating. It is important to teach students how to cope with failure, take responsibility for their learning and view learning as an ongoing process, rather than focusing solely on academic achievement.

How can the university structure support scaffolding?
Students should be encouraged to reflect on their learning process and adjust their study plans accordingly. Scaffolding should be gradually reduced as students progress, allowing them to become more independent in their learning over time. The key is to provide the right support at the right moment. It is essential to give students access to resources that enable them to support themselves and seek help when needed. Creating a safe environment where students feel comfortable making mistakes and learning from them is essential. Scaffolding should extend beyond individual courses and be embedded throughout the curriculum, giving students the opportunity to develop their self-regulated learning skills gradually. Scaffolding should be adapted to meet individual student needs, particularly when dealing with diverse backgrounds and prior knowledge. The transition from high school to university can be sharp and stressful, and students may need structured support as they learn to become more independent.

What is the role of autonomy and how can it be supported?
Despite the challenges, students need a degree of autonomy in their learning process. While some may require additional support, most students can manage their learning independently. However, many students struggle with autonomy, often believing there is only one correct way of doing things. Therefore, students benefit from having both structure and freedom. While structure helps them prioritise and learn how to learn, freedom fosters motivation and self-directed learning. It is important to find the right balance between giving students clear steps without being too rigid and allowing sufficient flexibility to accommodate their learning styles and preferences. Providing scaffolding or guidance can help students effectively handle the freedom granted to them in their learning process. Students may need reassurance and support as they navigate autonomy in their learning journey.

Key takeaways
There is no 'right' amount of scaffolding. At least, that is the conclusion from the discussions during the focus groups. As one staff member put it: "I always struggle with the paradoxical thing that you kind of need to regulate them to self-regulate. And that is inescapable." To support SRL, educators should assess what students need by asking them directly,

providing reassurance and guidance, balancing freedom, and structure, and allowing them autonomy. Educators can do this by experimenting with different approaches and practices in the classroom. For example, by providing more support in the beginning and then slowly fading the support based on the students' SRL skills development.

SRL and assessment – how do they fit together?

UM staff shared positive and negative experiences with assessment in an SRL context. Below are key considerations when integrating SRL practices into your course or practices.

Assessments should be challenging and designed to assess the quality of learning, rather than simply testing for knowledge recall. Assessments strongly influence student behaviour, shaping their approach to learning and study habits.
Programmatic assessments incorporating diverse methods such as exams, reports, videos, and portfolios were seen as beneficial for assessing SRL. Self-assessments and quizzes during the course were seen as valuable tools for assessing and promoting self-regulated learning and the content comprehension of students. Specifically, self-assessments were seen as useful tools for exam preparation, either on-demand or as a required part of the examination process. Self-assessment and quizzes also reinforced the full SRL cycle by integrating self-reflection before the course's "final" assessment. Participants also shared positive experiences with allowing students to create exam questions, which were then used for practice before the actual exam. Some of these student-generated questions were even included in the final exam. Additionally, asking students at the beginning of the course how they prefer to be assessed helped reduce complaints or dissatisfaction later.

Portfolios were identified as a potential method to assess self-regulated learning, allowing students to demonstrate their progress and reflective practices.

Participants emphasised the importance of selecting assessment methods that align with the specific learning outcomes and skills students need to develop, which relates to Constructive Alignment.

The distinction between educational weeks (focused on tutorials) and exam weeks (dedicated to examination preparation), was seen as reinforcing distinct phases of the learning process.
Assessments that encourage students to recognise that multiple perspectives are valuable – rather than seeking a single correct answer - were considered beneficial for fostering critical thinking and reflection. While assessment criteria should be clear, some participants suggested that introducing ambiguity in how students reach the desired outcomes can promote critical thinking and problem-solving skills.

Key takeaways:
Constructive alignment and diverse types of assessment are beneficial. Student-generated questions and practice exams can enhance learning. Assessment influences learning behaviours and therefore impacts SRL skill development.

These insights from the focus group highlight the need for a supportive and developmental approach in supporting students' transition to higher education and develop self-regulated learning skills. Recognising the challenges students face at the beginning of their university journey and throughout their studies allows for appropriate support that facilitates a successful transition and promotes their growth as lifelong learners. Peer support can be important cornerstones in this process.

What do UM staff members suggest paying attention to?

During the focus groups, UM staff members indicated several additions to the SRL cycle that they find useful in supporting SRL in the UM context. Below we summarise these key insights.

Self-reflection phase
Students should be encouraged to reflect not only on the content but also on their performance and approach to reading and understanding during tutorials. Allowing space for peer reflection and discussions about learning challenges should be part of SRL support. Reflection was acknowledged as a process that can sometimes lead to second-guessing oneself, and this aspect should be recognised and addressed. Regular and structured reflection, even in short moments at the end of a session, was suggested as a valuable addition.

Environment
The self-regulated learning cycle does not explicitly include the role of the learning environment, but participants suggested that establishing learning norms can support self-regulated learning. For example, providing a quiz after each task can help students test their knowledge and adjust their learning accordingly. Next to creating learning norms, fostering psychological safety was seen as an effective component of the self-regulated learning cycle and learning environment.

Approach
Switching between various stages of the cycle is a natural and necessary process, and this should be encouraged. Participants suggested incorporating exercises in courses to help students recognise SRL patterns and become more aware of the cycle. Additionally, SRL practices should emphasise the role of failure and error correction in the learning process as crucial components of self-regulated learning.

Feedback
Seeking help and feedback was highlighted as an important aspect of the performance stage in the self-regulated learning cycle, and it can be easily integrated into tutorials. Participants shared examples of how they support students by providing informal feedback in tutorials or discussing their learning progress, for example, by asking students about their study strategies.

What now? Take action!

This collection of SRL experiences and insights is designed to inspire and inform educators about supporting SRL in students. By linking UM practices with research, we developed a CANVAS module that helps teachers, course coordinators, mentors, and students navigate SRL terminology and strategies.
Scan the QR code and explore the step-by-step approach to develop your SRL support and skills at your own pace.

This collection is part of a broader effort to strengthen SRL at UM. There is still much to explore in terms of strategic implementation, structural changes, and student support. If you are inspired to develop SRL activities and would like support or advice, feel free to reach out to: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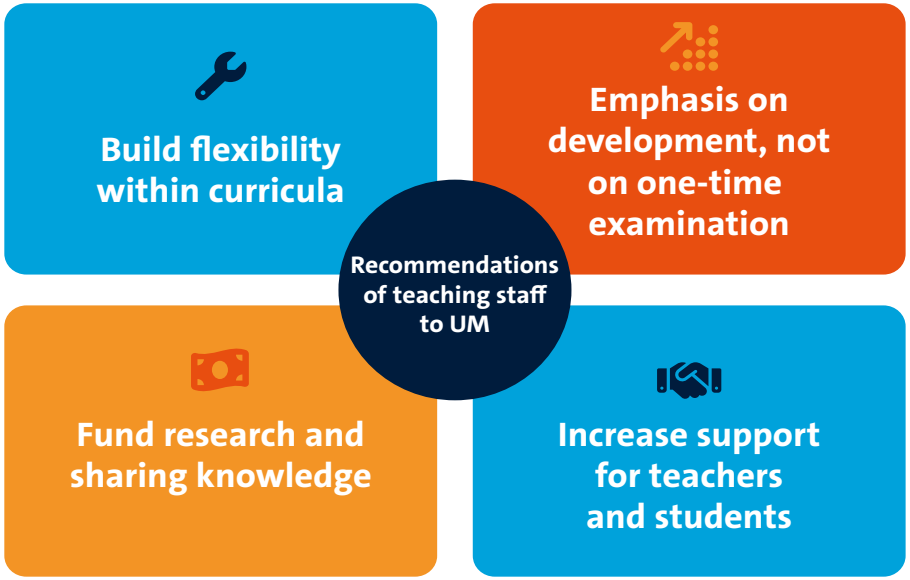
What do teaching staff recommend UM to change?

During the focus groups, UM staff shared what support they would like from the university and what structures and activities could enhance SRL. Based on their input, we formulated four key recommendations to improve SRL support at Maastricht University:



Build in flexibility
Encourage flexibility in course duration and structure, moving away from the standard three-year bachelor's programme and allowing students to take charge of their education. This could mean giving students the option to extend course duration or adjust the overall length of their studies. One approach mentioned was Universal Design for Learning (UDL), which involves offering different paths and approaches for students to achieve the same learning goals.

Development of course and curriculum design
Shift the focus from one-time examinations to student development and progress. Programmatic assessment, which emphasises continuous growth over traditional exams, is already gaining traction in universities. Another key suggestion was integrating students into the design of education and SRL practices. At both the course and programme level, students should be supported in learning how to learn and searching for information. Some faculties have already adopted the Study Smart programme to achieve this. Teaching staff also highlighted the need to reprioritise course content, skills development, and reflective practices. Incorporating regular reflection moments and opportunities for deliberate practice might enhance self-regulated learning.

Fund research and sharing knowledge
Expanding educational research beyond medicine to other disciplines could provide better insights into effective SRL practices. One discussion topic was the relationship between students' age, and brain development, and Problem-Based Learning. Exploring the neurobiology of PBL students could help better understand their learning processes and optimise teaching strategies tailored to different development stages. Collaboration across faculties should also be encouraged by increasing exchange between teachers, academic advisers, faculties, and programmes.

Increase support for educators and students
Teacher support is essential, not only through SRL training but also by recognising and rewarding educators' efforts in fostering SRL. Developing Recognition & Rewards frameworks to formally acknowledge SRL efforts could help strengthen teaching practices.

For students, two key areas of support were highlighted:

1. Time management: helping students develop time management skills and make informed choices while allowing them to learn from their decisions.
2. Thesis and academic writing support: provide guidance to help students through the writing process more effectively.

Conclusion

Effectively implementing SRL practices requires a concerted effort from educators, students, and UM. However, minor changes in teaching practices can already make a difference in fostering SRL skills in students. By communicating expectations clearly, setting defined standards, and building personal connections, educators can create an environment that supports SRL. Recognising challenges – such as balancing support with independence, recognising peer influence, and addressing logistical constraints– allows for a productive approach to integrating SRL into teaching. Ultimately, by prioritising these strategies will enhance the learning experience and better equip students for their academic journeys and beyond.

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