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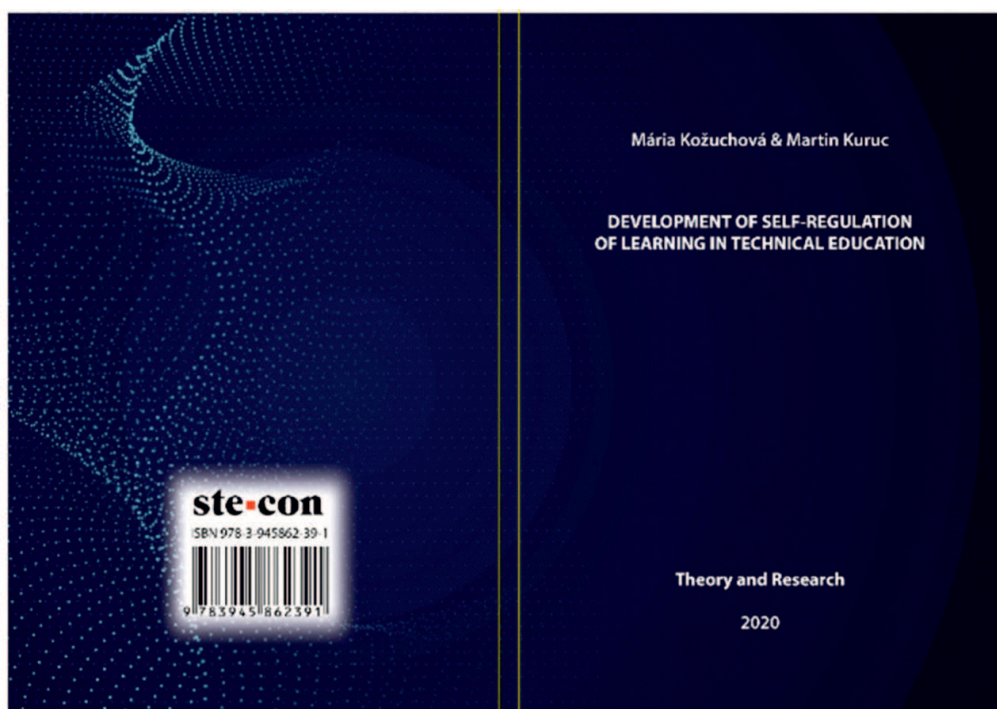
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**Mária Kožuchová and Martin Kuruc,
DEVELOPMENT OF STUDENTS'
SELF-REGULATED LEARNING
WITH A FOCUS ON TECHNICAL EDUCATION:
THEORY AND RESEARCH
1. vyd. Karlsruhe: Ste-Con, 2020. – 128 s. [print],
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Technology affects people's attitudes, values, mental and physical health, behaviour and lifestyle. Therefore, it is necessary to pay attention to learners' technical education from the beginning of learning. The European Union countries (hereinafter the EU) pay great attention to technical education. They base their curricula on the Council of Europe recommendations (2006), which set the main strategic objective: to create curricula that make the EU dynamic and competitive in the world. Therefore, from the point of view of technical education, it was necessary to: increase students' interest in studying science and technology, develop their scientific and technical competencies, provide all students with access to information and communication technologies, improve teacher training in science and technology education, and strengthen the

links between the world of work and scientific research. Kozík et al., 2013 Dostál, 2015; Dostál & Prachagool, 2016). For this reason, the authors M. Kožuchová and M. Kuruc created a monograph focused on the preparation of future teachers for teaching technical subjects. We were interested in the knowledge but also the motivational side of the process. Our goal was also to look for educational strategies that remove students' working memory blockage, often associated with anxiety because they do not understand the technical process. We tried to look for educational strategies in the research context (Částková, Kropáč & Plischke, 2016; Částková, 2018). Mathematical and scientific-technical literacy of graduates is also recognised by the labour market. Without mathematics, science, and technology, no significant progress in economics can be achieved.



The monograph is divided into four chapters. In the first chapter, the authors justify the need to solve the problem and explain the essence of self-regulated learning. They refer to self-regulation of learning as managing the whole process of acquiring knowledge – students are aware not only of what they are learning but also how they are learning - how they organize time, how they fight learning disruptions, understand what they are learning, manage

their concentration, and mainly they know that they learn in order to achieve certain goals. The authors set out selected strategies for self-regulation of pupils' learning from the beginning of schooling: leading them to understand their own goals and objectives of learning. In the process of learning a common problem of procrastinating and the lack of time may emerge. Procrastination as a tendency to postpone the fulfilment of tasks and works as a counterproductive factor of self-regulated learning.

The teacher's personality plays an essential role in self-regulated learning. The authors pay special attention to this issue. The teachers have their own ideas about work, goals and challenges, but they must solve the dilemmas related to their concepts, competencies and new facts about education. These facts have led the authors to the need to innovate undergraduate teacher education.

The second chapter provides an overview of the fundamental theories of self-regulated learning and their prominent representatives. It presents the details of self-determination theory according to Ryan and Deci (hereinafter SDT). It is an eclectic model of motivation based on the assumption that a person has a natural tendency to inner integration. The SDT seeks to answer how people are motivated in different social contexts and how they regulate their behaviour and experience in them. The authors of the monograph analyse in detail the cognitive and affective factors that influence self-regulated learning, characterize strategies, and present several programs to develop self-regulated students' learning.

Chapter three focuses on preschool and elementary pedagogy students and the issue of self-regulated learning in the context of teaching technical subjects. In educating future teachers, the authors focus on three components: professional, pedagogical-psychological, and didactic. Graduates are expected to have a thorough understanding of professional issues and make knowledge available to target groups. They are also required to organize, monitor, and evaluate educational activities. The role of the teacher is now fundamentally changing to support active learning based on an active attitude and is maintained by a didactically deliberate strategy. New student skills are also being added in new areas

(e.g., acquiring, processing, and evaluating information). The programs that teachers use are designed to master a range of cognitive strategies for developing self-regulation.

The teacher's mastery at the elementary level lies in the appropriate adaptive transformation of knowledge and procedures. The chapter also lists and analyses several limitations. Courses with a technical focus are not among those that are popular with students of pre-primary or primary education, so the authors emphasize the importance of personal, social, and emotional support in technical subjects for students at three universities: PdF UK in Bratislava, PdF UMB in Banská Bystrica PdF KU in Ružomberok. The authors' considerations are based on the knowledge of what is expected of students in the self-regulated learning process. Today's teachers face a significant challenge: how to manage the educational process so that it is sensual and connected with the support of the student's self-regulation? How do we know that a student enjoys learning? The path to effective technical education does not lead through increasingly sophisticated technical products but through the transformation of one-sided teaching to research and critical thinking. The authors do not idealize the preparation process but list motivational barriers that students often reveal. The truth is that good knowledge of science, technology, but also mathematics are not among the subjects that would be a determining factor in choosing a teacher for primary education, so they often encountered a negative belief in their mathematical skills and fear of failure in technological issues. One of the essential goals of undergraduate teacher training is the to alleviate anxiety about teaching some subjects. As there are several causes of anxiety, the impact on identifying and eliminating anxiety is primarily the teacher, their approach, teaching and assessment methods.

Based on the definition of the theoretical framework in Chapter 4, the authors presented the results of empirical research on self-regulated learning. They aimed to map the current level of self-regulation and motivation of students of pre-primary and primary education. They focused on self-regulation and motivation in technical education. The research was carried out in order

to obtain a specific picture about how the preparation of future teachers is organised and about the level of students' motivation to complete the primary education teaching program for technical subjects. The research was conducted at the three universities mentioned above. The authors used the self-determination theory by Richard M. Ryan and Edward L. Deci (Ryan and Deci, 2004) to gain important information about internal and external factors in self-regulation (anticipation, planning, monitoring, and self-assessment). Based on the results, they developed action proposals, which they present in the form of a SWOT analysis (strengths, weaknesses, opportunities and threats). It turns out that self-regulated students are very creative in using their specific skills to achieve goals to improve their own learning processes.

Professor Kožuchová and Dr. Kuruc have undoubtedly created groundbreaking work for the present and future of technical education. Therefore, the work has been reviewed by international panel of experts: Paweł Czarnecki, MBA, Dr h.c. (Poland), Moser Daniela, HS-Prof. Mag. Dr. (Germany) and Zdeněk Obdržálek, Prof. PhDr., DrSc. (Slovakia).

