DOI https://doi.org/10.30525/978-9934-26-478-8-25

STUDENTS' MENTAL SPEED AS A DETERMINANT OF STUDENT FUNCTIONING IN THE CLASSROOM

ШВИДКІСТЬ РОЗУМУ УЧНІВ ЯК ДЕТЕРМІНАНТ ФУНКЦІОНУВАННЯ УЧНІВ НА КЛАСІ

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Contemporary reflections by academics and practitioners are largely concerned with getting the best out of students. Increasingly, education research is based on understanding cognitive processes, which are currently becoming an important predictive factor of student success or prevention of school failure. One of the learner's cognitive characteristics that affect learning, the processing of information, is mental speed.

The role of cognitive processes in education. By cognitive processes we mean "the processes of receiving and processing information from the internal and external world. Using cognitive processes, sensory stimuli are processed, reduced, elaborated, stored and used, which manifests itself in behaviour or facial expressions. Cognitive processes include attention, memory, comprehension, speech, decision-making, problem-solving, etc." [1, p. 44]. Information processing is of great significance to a student's functioning at school. These skills support thinking, planning, controlling complex mental activities, emotions, creativity, and understanding abstract meanings of social interactions [2].

Until recently, research on cognitive processes has taken place in psychiatry and clinical cognitive psychology. Most recently, the concept of cognitive education has emerged, as reports in the field of research on cognitive structures can be applied to modern education. It is worth noting the new educational paradigm of KogEdu [3], based on the concepts of thinking and cognition. In the new educational dimension, we do not rely solely on the mastery of educational content, but pay attention to the activity and development of cognitive functions that are part of complex learning processes [4]. In this regard, we use metastrategies, including regulation of thinking, concentration, planning and problem-solving. We plan the learning

process and activate cognitive functions as learning tools (how to acquire knowledge?) to achieve positive learning outcomes [5].

Mental speed. Within the framework of the cognitive processes in question, it is possible to distinguish relationships that give rise to the possibility of framing them in criteria of visibility, hierarchy or speed of interest. The latter is related to memory and to perceptual functions, the speed of which decreases with age [6]. Mental speed is defined as "the speed at which the brain processes information. It is the ability to perform simple cognitive tasks requiring focus and attention quickly, fluently and adequately (...). Mental speed is one indicator of the effectiveness of thinking and learning" [7, p. 54]. Mental speed is the time it takes for a learner to receive information, process it and then formulate a response, in other words, to perform a mental task in general. If these processes are slow, the learner is seen as inattentive, not very bright, or less capable.

We can define cognitive process speed according to the type of perception. In visual perception, it is the rate at which a stimulus is received by the retina and transmitted to the cortex. In auditory perception, on the other hand, it is the transmission speed of the auditory stimulus and its interpretation in the brain. There is also the so-called motor flexibility of the learner indicating their speed and motor skills [8].

The speed of mental processing may be a condition for its efficiency, but not necessarily its effectiveness. A fast mental task can be wrong and a slow one, error-free [9].

Impact of mental speed on student functioning. Consideration of the concept of mental speed and its impact on student functioning or student achievement has become the focus of current research. Increasingly, researchers are reaching out to explore the construct of intelligence, which can have a significant impact on the achievement of outcomes in education.

Confirmation of the significant impact of mental speed on student functioning in the classroom came from the research of Flanagan and Mascola [10]. The results indicated a significant correlation between the mental speed in question with students' achievement in reading and mathematical skills. The results apply to younger learners, who develop speed and automation in performing new skills at this stage of their education. An important finding of the study was that learners with poor mental speed have problems performing simple cognitive tasks.

In their study, Braaten and Willoughby [11] demonstrated that mental speed influencing other areas of cognitive functioning can affect the ability to quickly generate responses, retrieve information in long-term memory, or the functioning of memory processes.

The correlation of cognitive function with mental speed, as discussed here, may have implications for cognitive functioning [12]. Poor mental speed is

associated with the need for more time, which can manifest itself in issues in the student's daily functioning: causing stress, frustration, and lack of motivation. It can manifest itself in students with dyslexia, ADHD or perceptual disorders [13].

The impact of mental speed on students' functioning in the classroom was confirmed in a study by Kovalčíková and Miecznik-Warda [14]. The results indicated a significant correlation between the Polish and mathematics teacher's rating on the scale and the mental speed test. It has been proven that the higher a student's mental speed, the better they function in class in their own assessment, as well as in the teacher's assessment.

Summary. Bearing in mind the findings presented on the impact of mental speed on students' functioning in the educational space, it is possible to point to the important value of cognitive diagnosis. It should become a fundamental aspect of the teacher's activities. A learner with poor mental tempo, undiagnosed in terms of mental speed aspects, can have major issues with motivation, self-esteem, and functioning during lessons. In contrast, in the case of a learner with high mental speed, he or she may be perceived as impulsive, and hyperactive, which is associated with angry teachers and peers. Through accurate diagnosis and therapeutic work, the teacher will be able to tap into the inner learning potential of such students, which up to now they have not had the chance to show or have shown in a bad light. Indications would be needed here to work on the speed aspects of the mind in these students and to work towards creating optimal learning conditions.

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