

Learning and memory: Stress

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COMMENTARY

Exams, tight deadlines and interpersonal problems are only a few of the many situations that can cause students and teachers to become stressed. Stress, as well as the hormones and neurotransmitters generated during and after a stressful event, have been discovered as fundamental modulators of human learning and memory processes, with important implications for educational settings. While it is assumed that stress around the time of learning enhances memory formation, resulting in strong memories, stress significantly hinders memory retrieval, putting students at danger of failing tests. Stress may also impede the updating of memories in light of new knowledge, causing a change from a flexible, “cognitive” form of learning to inflexible behaviour, according to recent studies. These stress-related changes may explain some of the difficulty students have learning and remembering in the classroom. Using these insights from psychology and neuroscience to aid educational processes for both students and teachers has the potential to be beneficial. Stressful occurrences occur frequently in educational environments, affecting both students and staff [1]. Exams, evaluations, and deadlines abound, putting a tremendous amount of pressure on students to do well. This stress, on the other hand, has the potential to negatively impair learning and memory processes, which are at the heart of our educational system. Stress-induced changes in learning and memory are hypothesised to contribute to stress-related mental diseases such as major depressive disorder and post-traumatic stress disorder, in addition to its educational relevance. As a result, numerous researches have been carried out in order to better understand how stress impacts learning and memory. Stress, on the other hand, was discovered to have a complicated effect on memory, with stress having both enhancing and hindering effects depending on the individual memory process or stage that is affected by stress, as well as the activity profile of important physiological stress response systems [2]. The effects of stress on our ability to learn and recall are far-reaching, with substantial implications for educational settings. Given the prevalence of stress in education, and the fact that even primary school students frequently express stress symptoms, knowing the impact of stress on memory is critical. For one thing, an optimal education is critical for an individual’s future employment success and social standing. Furthermore, our educational system is extremely important for society as a whole because it is responsible for developing and instructing the next generation. Despite the significant gains in our understanding of how stress affects learning and memory processes, numerous problems

remain unanswered, such as inter individual disparities in stress’s effects on memory. While some research has suggested that personality, gender, or stress system reactivity may modify how stress impacts learning, the findings are not conclusive, and the mechanisms involved are not well understood enough to make suggestions to teachers. Individualized methods or training programmes aimed at mitigating stress-induced deficits require an understanding of these inter individual variances. More research is needed to understand the precise evolution of stress effects on memories throughout time, as it is currently unclear when and how long the enhancing and hindering effects of stress on memory formation occur. Similarly, it is still unknown if different types or intensities of stressors affect memory in different ways. Furthermore, the majority of research failed to distinguish between the effects of stress on distinct forms of declarative memory, such as semantic and declarative memories. Future research is needed to see if stress has varied effects on these memory systems, which would give us a better understanding of how stress affects different types of learning and memory. Finally, chronic or repeated stress, as well as stress at important stages of brain development, may have a significant impact on children’s learning and memory. As a result, different levels of stress at different stages of development may have different impacts, which need to be researched further. Future study on the impacts of stress on learning and memory will hopefully provide answers to these and other related concerns, allowing us to gain a better knowledge of how stress affects learning and memory how does stress influence memory, and why do people react differently to stress? Answering these questions may aid in tailoring learning environments to the individual’s specific needs, maximising the beneficial effects of emotions on memory, and reducing the cognitive impairments that stress and strong emotional responses can produce [3].

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