

The Relationship Between Students' Academic Emotions and Learning Behaviors in School Education

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Abstract: Different academic emotions have different effects on learning behavior, and most studies pay more attention to the influence of positive emotions on learning behavior and performance, and not on negative academic emotions. This paper first classifies and analyzes academic emotion in different dimensions, then expounds different dimensions of learning behavior with examples, and finally analyzes the two together to explore the relationship between them. This thesis aims to analyze and summarize the effects of different academic emotions on learning behavior of different dimensions, focusing on explaining the effects of negative emotions on different aspects of learning behavior and performance and the importance of assessing students' learning behavior. In the future, people can further explore the improvement effect of negative academic emotions on learning effects, how educators can take effective measures to understand the learning behaviors of different students and develop personalized teaching methods for them in order to cope with future academic difficulties.

Keywords: Academic emotions, learning behaviors, influence

1. Introduction

Academic emotions are defined as emotions that are directly linked to academic learning, classroom instruction, and achievement [1]. Until recently, it was slowly realized that emotion was at the heart of the pursuit of human achievement. In the initial study, researchers found that emotions exist in learning behaviors and have a huge impact on students. For example, when you are studying, you might like it, or it is boring. You may be upset about the obstacles you encounter, or be happy about your grades. Some scholars have studied the influence of academic mood on learning behavior. One researcher found that positive academic sentiment was better than negative academic sentiment in improving academic performance [2]. In another academic study, they researched the relationship between emotion regulation and performance in kindergarten children, and showed that emotion was associated with teacher-reported child performance in class and early literacy and math learning [3]. These articles focus on researching the relationship between academic emotions and learning behaviors, and conclude that the positive emotions are more beneficial for the students' learning.

But one study suggests that students' academic emotions are very complex and are more focused on how to regulate and deal with them [4]. And Gotz emphasized proposing a series of measures to intervene in order to develop students' emotional intelligence and teach them how to become masters of their emotions [5]. These two articles tend to research solutions for the effect from academic

emotions in the student's learning behaviors. However, many studies didn't reach consistent result in the different effects of negative emotions for the students' learning behaviors. (For example, anxiety and despair are both negative emotions; however, they may have the opposite effect on student engagement: anxiety causes students to work hard because they do not want to fail, and despair may minimize student engagement.[4]). This paper will review the paper from 2012-2023, and while studying these issues, I would like to summarize the previous research perspectives of other scholars.

2. Academic emotions

Academic emotions are all kinds of academic emotional experiences that students feel in learning or teaching situations [2]. In the case of academic emotions, Pekrun, Elliot, and Maier proposed four dimensions of classification: valence, object focus (activity versus outcome), and temporal focus (prospective, retrospective, or current). For example, pride is more focused on results, which is a positive activating emotion brought by an achievement or the result of learning activity, which is retrospective, while anger tends to focus on the present learning activity or the result of retrospective time activity, which is a negative activating emotion [5]. For the dimension of object focus, it's also an important angle of classification. Object focus is important because it can determine the relevance of mood and current academic tasks. Then in 2012, Pekrun proposed that they can be classified by valence and activation. For valence, positive states, such as happiness, can be differentiated from negative states, such as anxiety [4]. For activation, there are activating states and deactivating states, such as activating excitement versus deactivating relaxation.

Positive academic emotions often benefit students' perception of knowledge and their learning behavior. For example, Park found that positive academic emotions allowed students to get better grades on exams and have a stronger memory of knowledge points. Negative academic emotions usually lead to poor attention and efficiency of the opposite academic task, leading to poor academic performance [2]. But there are some special cases. For example, anxiety and hopelessness are opposites. However, anxiety can encourage students to work hard and then avoid failure, whereas hopelessness may prevent students from learning [4]. Positive emotions that are too extreme, such as excessive excitement, may also make people unable to focus on their current learning.

Academic mood can influence students' motivational engagement. Pekrun proposed in the cognitive / motivation model of emotional effects that motivational effects may be different in activating and inactivating emotions. The model proposes the hypothesis that activating positive emotions promotes motivational engagement, whereas deactivating emotions undermine motivational engagement [4].

Studies on academic emotions found that emotions have an impact on various cognitive processes that are beneficial to learning, such as concentration, perception, problem-solving ability, memory, etc. [4]. And memory research has shown that emotions influence storage and retrieval of information.

Emotions can be inferred by physiological tests or by observing facial expressions. However, extensive data collection is time consuming, and assessing mood changes in all students in the classroom is more complex. Therefore, researchers often collect student self-reports [5].

3. Learning behaviors

Teachers who have taught for many years know that the students with good grades have many basic behaviors that are called basic or stylistic learning behaviors. Research shows that different learning-related behaviors such as active participation, concentration, frequent reflection,

acceptance of correction and evaluation, curiosity about novelty, and thinking and use of effective learning strategies contribute to students' learning and success [6].

As a construct, learning behavior is influenced in part by earlier research on cognitive styles, reflectivity, temperament, competence, and effectiveness motivation [7]. McDermott showed that these initial research methods did have an impact on the "learning behavior" structure, but he thought that there should be a more "behavior" -oriented approach to measure and study these structures. The Learning Behavior Scale was created to unify an effective measure at reasonable cost and time, conform to national norms and to observe and record crucial learning behaviors. Then they proposed a four-factors model [6]. These four factors are also the four dimensions of learning behavior.

There are four different dimensions of learning behavior: Competence Motivation, Attitude Toward Learning, Attention/Persistence, and Strategy/Flexibility [7]. And they are facets of competency related to schooling that have been previously identified by learning and development experts [8]. Competence motivation is associated with students' desire and motivation to understand what they have learned. This indicates a child's willingness and determination to successfully complete learning tasks. Attention/Persistence factors are related to a child's ability to persist when challenged and their attention to relevant environmental characteristics. Attitude towards learning, including behavior in a child's general learning environment, more specifically, 'learning attitude' describes a student's willingness to be helped and their ability to handle setbacks [9].

Success usually belongs to those children who are motivated, focused and have a good attitude of learning. In turn, good learning behavior has beneficial effects on other aspects of other students, including social skills, judgment, and the development of cognitive processes [7]. Therefore, it is very important to study and cultivate learning behaviors.

4. The relationship between academic emotions and learning behaviors

Analysis of a study showed that academic emotions had a great influence on their motivation to learn as well as their ability to self-regulate. A common study has found that many negative emotions such as anger and fear can negatively affect learning behavior and effects, while positive emotions can promote the generation of good learning behavior and performance [10]. For example, a study showed that when facing different kinds of learning tasks, students developed different academic emotions, and increased their attention when doing learning tasks, they were interested in [2].

Many studies generally show that positive activation of emotions such as happiness and pride can stimulate people's internal and external motivation, and encourage them to think about learning methods and strategies and use them flexibly, thus having a positive impact on learning behavior and performance. Regulation of learning methods and cognitive strategies can be accomplished by frequent engaging in activities that generate positive academic emotions. Most studies also point out that negative inactivation emotions, such as despair, will make students' motivation to learn, and students' cognitive ability, perception and understanding of knowledge will be reduced, and they cannot think about coping strategies in the face of problems, so that they will have a negative impact on learning performance and effects. A study of graduate students in which researchers improve learning outcomes by encouraging subjects to actively think about learning strategies and apply them. Studies have shown that although students develop more negative emotions during the increasing difficulty of the learning task, students will interact and adopt more correct and appropriate learning strategies to cope with the problem [2].

However, some studies suggest that there are more complex situations present, such as positive inactivating emotions and negative activating emotions. Specifically, the negative activation of emotions like anxiety will reduce the students' internal motivation and reduce their ability to receive

and process information, but the external motivation will increase, prompting them to study hard in order not to fail. For example, if a student is afraid of failing the exam the next day, his inner motivation to study is destroyed, and the external motivation is that he does not want to get a failing result, which is strongly stimulated by [11]. Therefore, the impact of this negative emotion on students' motivation to study hard may not be negative. Instead, they may also lead students to adopt stricter self-regulation and learning strategies, such as prolonged learning time [12]. For example, there is a study (traditional and online courses and difficult learning tasks) that learning strategies that students think and actively adopt after regulating academic emotions have an impact on academic performance and performance. In the traditional education group, it was more significant that the anxious or difficult students solved their current state by changing their learning strategies. A higher level of anxiety indicates that the more effective strategy will be used [2]. Although for the majority of students, negative emotions may have more negative effects on their academic performance than the positive effects, but they can still improve and regulate students' learning behavior.

Finally, this paper will detail the specific effects of negative academic emotions on several dimensions of the learning behavior. Prospective and retrospective negative academic emotions, generally believed to have a negative impact as well as a positive impact. And the relative intensity magnitudes of these two effects determine the results. Take anxiety next. First, anxiety makes people less able to receive and process information, and this narrower information processing reduces creativity. Second, anxiety is highly distracting, and the cognitive focus is shifted, as anxiety leads to a lot of thinking that is irrelevant to the work at hand. Third, anxiety can destroy people's positive internal motivation, but it may cause people to generate more negative internal motivation to escape the task, and may stimulate strong positive internal motivation to avoid failure [13].

On the other hand, among the domain of negative pro-/retrospective emotions, there is an emotion that is clearly detrimental to learning and achievement. This is despair. In addition to implying worries about the non-attainability of positive outcomes, despair can also generate a state of submissive motivation. Therefore, if despair is prevalent in the field of academic tasks, it may greatly reduce learning behavior and the resulting achievements. Certainly, this is one of the factors that lead to many students' learning disabilities and poor grades [13].

5. Conclusion

This paper systematically evaluates the relationship between academic emotions and learning behaviors based on existing research. Most existing studies only use self-report methods to measure academic sentiment, physiological measures are equally important in this paper. Indeed, people can combine subjective and objective measures to yield more accurate results. This paper specifically discuss the influence of negative academic emotions on several dimensions of learning behavior, and tends to support this view that both positive and negative emotions have multifaceted effects on learning behavior and performance. However, the details in which negative academic mood can improve learning outcomes are unclear, and rigorous controlled trials and long-term large data collection are required for further research. Learning behavior is an observable behavior exhibited by students when they are trying to perform academic tasks. Tools related to learning behavior assessment are important because research shows that learning behaviors can compensate for the limitations of intelligence on the development of people; moreover, they can be changed and taught in the short term compared to cognitive function.

Future research could explore how teachers should adopt strategies to change students' academic emotions to achieve effects that can improve their learning behavior. In addition, a combination of multiple models should be used to record how students' learning behavior and academic emotions

change over time, as well as the interaction of academic emotions and learning behavior with the learning environment. These appropriate learning environments help students to adopt effective learning strategies and avoid ineffective work. Besides, learning behavior should be seen as a key target for educators. Understanding how these learning behaviors are represented by specific students may facilitate planning and implementing interventions specifically designed to promote these areas and considering preventing future academic difficulties.

References

- [1] Dong, Y., Wang, H., Zhu, L. et al. *How Parental Involvement Influences Adolescents' Academic Emotions from Control-Value Theory*. *J Child Fam Stud* 29,282(2020). <https://doi.org/10.1007/s10826-019-01586-3>
- [2] Tan, J., Mao, J., Jiang, Y. Z., Gao, M., (2021) *The Influence of Academic Emotions on Learning Effects: A Systematic Review*. *Int. J. Environ. Res. Public Health*. 18:1-14 <https://doi.org/10.3390/ijerph18189678>
- [3] Paulo A. Graziano, Rachael D. Reavis, Susan P. Keane, Susan D. Calkins. (2007) *The Role of Emotion Regulation and Children's Early Academic Success*. *J Sch Psychol*. 2007 Feb 1; 45(1): 3 DOI: 10.1016/j.jsp.2006.09.002
- [4] Pekrun, R., Linnenbrink-Garcia, L. (2012). *Academic Emotions and Student Engagement*. In: Christenson, S., Reschly, A., Wylie, C. (eds) *Handbook of Research on Student Engagement*. Springer, Boston, MA. pp.259-266 https://doi.org/10.1007/978-1-4614-2018-7_12
- [5] Gotz, T., Bieg, M., (2016) *Academic emotions and their regulation via emotional intelligence*. In: *the 2016 Annual Meeting of the American Educational Research Association*. Washington, DC. pp.279-281 https://doi.org/10.1007/978-3-319-28606-8_11
- [6] Canivez, G. L., Willenborg, E., & Kearney, A. (2006). *Replication of the Learning Behaviors Scale Factor Structure With an Independent Sample*. *Journal of Psychoeducational Assessment*, 24(2), 98. <https://doi.org/10.1177/0734282905285239>
- [7] Paul A. McDermott (1999) *National Scales of Differential Learning Behaviors Among American Children and Adolescents*, *School Psychology Review*, 28:2, 280 <https://doi.org/10.1080/02796015.1999.12085965>
- [8] Barbara A. Schaefer (2004) *A Demographic Survey of Learning Behaviors Among American Students*, *School Psychology Review*, 33:4, 483, DOI: 10.1080/02796015.2004.12086263
- [9] Hahn, K. R., Schaefer, B. A., Merino, C., & Worrell, F. C. (2009). *The Factor Structure of Preschool Learning Behaviors Scale Scores in Peruvian Children*. *Canadian Journal of School Psychology*, 24(4), 321. <https://doi.org/10.1177/0829573509349015>
- [10] Stefanie Obergriesser & Heidrun Stoeger (2015) *The role of emotions, motivation, and learning behavior in underachievement and results of an intervention*, *High Ability Studies*, 26:5 <https://doi.org/10.1080/13598139.2015.1043003>
- [11] Reinhard Pekrun, Anne C. Frenzel, Thomas Goetz, Raymond P. Perry (2007) *The Control-Value Theory of Achievement Emotions: An Integrative Approach to Emotions in Education*. In: Paul A. Schutz, Reinhard Pekrun. (Eds.) *Emotion in Education*. Academic Press. pp.26. <https://doi.org/10.1016/B978-012372545-5/50003-4>
- [12] Reinhard Pekrun, Thomas Goetz, Anne C. Frenzel, Petra Barchfeld, Raymond P. Perry (2011) *Measuring emotions in students' learning and performance: The Achievement Emotions Questionnaire (AEQ)*. *Contemporary Educational Psychology*, 36:38 <https://doi.org/10.1016/j.cedpsych.2010.10.002>
- [13] Pekrun, R. (1992) *The Impact of Emotions on Learning and Achievement: Towards a Theory of Cognitive Motivational Mediators*. *Applied Psychology: An International Review*, 41:372-373 <https://doi.org/10.1111/j.1464-0597.1992.tb00712.x>