

## **Relationship between academic emotions and performance in university students. A narrative review**

### **Abstract**

*Introduction:* It has been argued that emotions can deeply affect students' thoughts, motivation and acts and, therefore, students' academic efficiency. Control-value theory by Pekrun (2006, 2018) is the main archetype to identify emotions' existence, background and effects. Pekrun establishes a bidirectional relationship between emotions and academic efficiency. Studies about emotions in academic background have traditionally focused on test anxiety, whereas the rest of the emotions have not been so investigated. In this context, Pekrun and his contributors elaborated a multidimensional questionnaire, Academic Emotions Questionnaire (Pekrun, Goetz & Perry, 2005), to measure a set of academic emotions in three different academic situations: in class, studying and in an exam. *Objective:* The aim of this work was to examine scientific literature about the relationship between academic emotions and efficiency in university context. The specific aims are to clarify (1) which is the context that has been evaluated on each occasion and (2) which are the emotions that are most frequently referred. *Method:* A systematic article search was made in PsycINFO and ERIC databases selecting the terms 'academic emotions' AND 'academic achievement' OR 'academic performance' OR 'academic success', selecting teaching periods from 2016 to January 2022. Ten articles were chosen. *Results:* The context that was mostly evaluated was classroom teaching, which is understandable, since in the classroom students can find resources and support as well as threats and difficulties, and all that this implies with respect to teachers and their actions. The most studied emotions in our review were enjoyment, anxiety and boredom. Regarding enjoyment, the meta-analysis by Camacho-Morles et al. (2021) found a positive association between enjoyment and performance, as in our review, supporting the idea that positive emotions are beneficial for learning and performance. Regarding boredom, we found a negative association with performance, as in the study mentioned above, thus corroborating the detrimental impact of deactivating negative emotions for performance, by reducing intrinsic motivation and engagement. *Conclusions:* The diversity, frequency and emotional intensity affect learning, adaptation to the educational world and physical and psychological well-being. Due to these reasons, the educational community and researchers should broaden the spectrum of observation of emotional experiences and contemplate the different emotions and their implications in transit through educational institutions.

**Keywords** Academic emotions · Academic achievement · Control-value theory · Achievement emotions questionnaire

## **Relación entre emociones académicas y rendimiento en estudiantes universitarios. Una revisión narrativa**

### **Resumen**

*Introducción:* Se ha propuesto que las emociones pueden afectar profundamente a los pensamientos, motivación y acción del estudiantado y, por tanto, a su rendimiento académico. La Teoría del Control-Valor de Pekrun (2006, 2018) es el principal modelo para identificar la presencia, antecedentes y efectos de las emociones. Pekrun establece una relación bidireccional entre las emociones y el rendimiento académico. Los estudios sobre las emociones en el contexto académico se han centrado históricamente en la ansiedad ante los exámenes, mientras que las otras emociones no han sido tan investigadas. En este contexto, Pekrun y sus colaboradores desarrollaron un cuestionario multidimensional, el Cuestionario de Emociones Académicas (Pekrun, Goetz y Perry, 2005), para medir un conjunto de emociones en tres situaciones académicas diferentes: estar en clase, estudiar y hacer un examen. *Objetivo:* el propósito de este trabajo fue examinar la relación entre las emociones académicas y el rendimiento en el contexto universitario. Los objetivos específicos son dilucidar (1) cuál es el contexto que se ha evaluado en cada ocasión y (2) cuáles son las emociones que con mayor frecuencia son referidas. *Método:* Se realizó una búsqueda sistemática de artículos en la bases PsycInfo y ERIC seleccionando los términos “academic emotions” AND “academic achievement” OR “academic performance” OR “academic success”, eligiendo los años 2016 hasta enero de 2022. Se seleccionaron 10 artículos. *Resultados:* El contexto que se ha evaluado mayoritariamente ha sido la enseñanza en clase, es comprensible, ya que en el aula los estudiantes pueden encontrar recursos y apoyo tanto como amenazas y dificultades, y todo lo que ello implica con respecto al profesorado y sus actuaciones. Las emociones más estudiadas en nuestra revisión fueron el disfrute, la ansiedad y el aburrimiento. Respecto al disfrute, el meta-análisis realizado por Camacho-Morles et al. (2021) encontró una asociación positiva entre el disfrute y el rendimiento, al igual que en nuestra revisión, dando apoyo a la idea que las emociones positivas son beneficiosas para el aprendizaje y el rendimiento. En cuanto al aburrimiento, encontramos una asociación negativa con el rendimiento, como en el estudio mencionado anteriormente, corroborando así el impacto perjudicial de las emociones negativas de desactivación para el rendimiento, al reducir la motivación intrínseca y el compromiso. *Conclusiones:* La diversidad, frecuencia e intensidad emocional afectan al aprendizaje, a la adaptación al mundo educativo y al bienestar físico y psicológico. Debido a estas razones, la comunidad educativa y los investigadores deberían ampliar el espectro de observación de las experiencias emocionales y contemplar las diferentes emociones y sus implicaciones en el tránsito por las instituciones educativas.

**Palabras clave** Academic emotions · Academic achievement · Control-value theory · Achievement emotions questionnaire

### 1. INTRODUCTION

- Emotions and their consequences
- Control-Value Theory (Pekrun, 2006, 2018)
- Achievement Emotions Questionnaire (AEQ, Pekrun, Goetz & Perry, 2005)

**Objective:** to examine the relationship between academic emotions and performance in university context

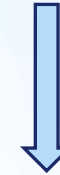
**Specifics:** (1) to clarify context most evaluated and (2) emotions most frequently referred

### 2. METHOD

PRISMA criteria (2021)

- PsycINFO and ERIC databases
- Terms 'academic emotions' AND 'academic achievement' OR 'academic performance' OR 'academic success'
- Period 2016 to January 2022
- Ten articles were chosen

### 3. RESULTS



### 4. DISCUSSION/CONCLUSION

- To broad the spectrum of observation of emotional experiences
  - (1) Class-related
  - (2) Enjoyment, boredom and anxiety.
- Positive relationship between enjoyment and performance  
Negative relationship between boredom and performance  
Anxiety depends: normal or extrem anxiety

Source	Objectives	Participants	Academic Emotions	Instruments
Hailikari et al. (2016)	To investigate what emotions second-year students express when they describe their first year of studies	43 Finnish 2nd-year Bach. of Arts students (77% female, M=24)	Enjoyment, Hope, Pride, Anxiety, Anger...	►Structured interview: 12 questions on three broad topics: experiences of the first year of study
Anttila et al. (2016)	To identify the spectrum of academic emotions experienced by student teachers in different academic activities	19 Finnish primary school teachers finishing their master's degree (14 women, M=31 years)	Hope, Enjoyment, Pride, Anxiety, Fear, Boredom...	►Semi-structured interview. Teacher´s Professional Landscape Inventory (TPLI; Soini et al., 2010)
Respondek et al. (2017)	Impact of perceived academic control on dropout intention, academic achievement and academic emotions	883 German STEM students (48% women, M=20,23; SD=2.54). 597 freshmen & 286 sophomores)	Enjoyment, Boredom, Anxiety	►Academic Control Scale (PAC; Perry et al., 2001)►Academic Emotions Questionnaire (AEQ; Pekrun, Goetz & Perry, 2005)►Freshman Orientation Survey (Brown, 2012)►Grade point average
Muntaner-Mas et al. (2017)	To study the relationship between teaching skills, academic emotions, stress and perceived academic control in determining academic performance	173 Spanish physical education students between the 3rd (70.6%) and 4th year (29.4%) (76% women, M=22,78 & SD=4,25)	Enjoyment, Hope, Anxiety, Shame	►Questionnaire Teaching Skills (López-Cámara, González-López & León-Huertas, 2015)►AEQ (Pekrun, Goetz & Perry, 2005)►Questionnaire Academic Stress (Arribas, 2013) ►PAC (Perry et al., 2001)
Asikainen et al. (2017)	Relationship between self-regulated learning, academic emotions, psychological flexibility, academic performance and study pace	274 Finnish students from the Faculty of Arts (226 women, M=28,6 & SD = 8,3)	Hope, Pride, Boredom, Anger, Shame, Anxiety, Enjoyment	►Self-regulation scale (Vermunt and Van Rijswijk, 1988) ►AEQ (Pekrun, Goetz & Perry, 2005) ►Performance
Pelch (2018)	To create a broad multi-dimensional model of students´ academic emotions grounded in the contexts of their academic experiences	19 US biology students with moderate to high levels of CTAS (14 women)	Anxiety, fear, lack of confidence, frustration...	►Cognitive Test Anxiety Scale (CTAS; Cassady and Finch, 2014) ►Semi-structured interview. Feelings and emotions
Hintsanen et al. (2018)	To examine the association of self-regulated learning skills and academic emotions in students doing their master´s thesis	84 Finnish students of educational sciences, psychology, cognitive sciences or speech sciences (78 women)	Enjoyment, Boredom, Anger, Hopelessness, Shame, Pride, Anxiety, Enthusiasm	►Pintrich´s Motivated Strategies for Learning Questionnaire (Pintrich et al., 1991). ►AEQ (Pekrun, Goetz & Perry, 2005)
Kamtsios et al. (2020)	To identify qualitatively different profiles based on two personality traits and three learning approaches	210 greek students from four different courses in philosophy, education and psychology. (74.8% women, M=21.37 & SD=4.56).	Hope, Confidence, Pride, Frustration, Anxiety, Shame	►Approaches to Learning and Studying Inventory (ALSI; Entwistle et al., 2003)►Revised Academic Hardiness Scale (RAHS; Benishek et al., 2005)►Test Anxiety Inventory (TAI; Spielberger, 1980)►Student Experience of Emotions Inventory (Trigwell et al., 2012)►Academic achievement
Lee et al. (2019)	To identify emotional profile in a virtual learning environment	777 Korean students from all university courses and graduated in different degrees (40% women)	Enjoyment, Pride, Anger, Boredom, Anxiety	►AEQ (Pekrun, Goetz & Perry, 2005) ►Academic achievement (Chei ,2016) and learner satisfaction (Lee & Kim, 2013)
Leino et al. (2021)	To analyse the relationship between students´ activity in a virtual learning environment, their assistance, academic emotions and module grades.	UK psychology students: 210 in the 1st and 152 in the 2nd year (progression rate 72%, 92% women). Longitudinal	Enjoyment, Hope, Pride, Anger, Anxiety, Shame,Hopelessness, Boredom	►AEQ (Pekrun, Goetz & Perry, 2005) ►Performance

## References

- Anttila, H., Pyhältö, K., Soini, T., & Pietarinen, J. (2016). How does it feel to become a teacher? Emotions in teacher education. *Social Psychology of Education, 19*(3), 451–473. <https://doi.org/10.1007/s11218-016-9335-0>
- Asikainen, H., Hailikari, T., & Mattsson, M. (2018). The interplay between academic emotions, psychological flexibility and self-regulation as predictors of academic achievement. *Journal of Further and Higher Education, 42*(4), 439–453. <https://doi.org/10.1080/0309877X.2017.1281889>
- Camacho-Morles, J., Slemp, G. R., Pekrun, R., Loderer, K., Hou, H., & Oades, L. G. (2021). Activity Achievement Emotions and Academic Performance: A Meta-analysis. *Educational Psychology Review, 33*, 1051–1095. <https://doi.org/10.1007/s10648-020-09585-3>
- Hailikari, T., Kordts-Freudinger, R., & Postareff, L. (2016). Feel the Progress: Second-year Students' Reflections on Their First-year Experience. *International Journal of Higher Education, 5*(3), 79–90. <https://doi.org/10.5430/ijhe.v5n3p79>
- Hayat, A. A., Shateri, K., Amini, M., & Shokrpour, N. (2020). *Relation-ships between academic self-efficacy, learning-related emotions, and metacognitive learning strategies with academic performance in medical students: A structural equation model*. BMC Medical Education, 20,76.
- Hintsanen, M., & Pyhältö, K. (2019). Are learning skills associated with academic emotions elicited by master's thesis work? *Journal of Further and Higher Education, 43*(9), 1299–1313. <https://doi.org/10.1080/0309877X.2018.1483012>
- Kamtsios, S., & Karagiannopoulou, E. (2020). Undergraduates' Affective-Learning Profiles: Their Effects on Academic Emotions and Academic Achievement. *Hellenic Journal of Psychology, 17*(2), 176–204.
- Lee, J. Y., & Chei, M. J. (2020). Latent profile analysis of Korean undergraduates' academic emotions in e-learning environment. *Educational Technology Research and Development, 68*(3), 1521–1546. <https://doi.org/10.1007/s11423-019-09715-x>
- Leino, R. K., Gardner, M. R., Cartwright, T., & Döring, A. K. (2021). Engagement in a virtual learning environment predicts academic achievement in research methods modules: A longitudinal study combining behavioral and self-reported data. *Scholarship of Teaching and Learning in Psychology*. <https://doi.org/10.1037/stl0000281>
- Liebert, R. M., & Morris, L. W. (1967). Cognitive and emotional components of test anxiety: A distinction and some initial data. *Psychological Reports, 20*(3), 975–978
- Mandler, G., & Sarason, S. B. (1952). A study of anxiety and learning. *The Journal of Abnormal and Social Psychology, 47*(2), 166–173.

- Mellado, V., Borrachero, A. B., Brígido, M., Melo, L. V., Dávila, M. A., Cañada, F., ... & Bermejo, M. L. (2014). Emotions in science teaching. *Ensenanza de Las Ciencias*, 32(3), 11–36. <https://doi.org/10.5565/rev/ensciencias.1478>
- Muntaner-Mas, A., Vidal-Conti, J., Sesé, A., & Palou, P. (2017). Teaching skills, students' emotions, perceived control and academic achievement in university students: A SEM approach. *Teaching and Teacher Education*, 6(7), 1–8. <https://doi.org/10.1016/j.tate.2017.05.013>
- Murphy, S., MacDonald, A., Danaia, L., & Wang, C. (2019). An analysis of Australian STEM education strategies. *Policy Futures in Education*, 17(2), 122-139
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). Updating guidance for reporting systematic reviews: development of the PRISMA 2020 statement. *Journal of clinical epidemiology*, 134, 103-112.
- Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review*, 18(4), 315–341. <https://doi.org/10.1007/s10648-006-9029-9>
- Pekrun, R. (2018). Control-value theory: A social-cognitive approach to achievement emotions. In G. A. D. Liem, & D. M. McInerney (Eds.), *Big theories revisited 2: volumen of research on sociocultural influences on motivation and learning* (pp. 162–190). Information Age Publishing.
- Pekrun, R., Goetz, T., & Perry, R. P. (2005). *Achievement emotions questionnaire (AEQ) - User's manual*. Munich, Germany: University Of Munich, Department of Psychology.
- Pekrun, R., Hall, N. C., Goetz, T., & Perry, R. P. (2014). Boredom and academic achievement: testing a model of reciprocal causation. *J. Educ. Psychol.* (106), 696–710. doi: 10.1037/a0036006
- Pelch, M. (2018). Gendered differences in academic emotions and their implications for student success in STEM. *International Journal of STEM Education*, 5(1). <https://doi.org/10.1186/s40594-018-0130-7>
- Pintrich, P. R., & Schunk, D.H. (2006). *Motivación en contextos educativos*. Madrid, Pearson
- Respondek, L. Seufert, T., Stupnisky, R. & Nett, U. E (2017) Perceived Academic Control and Academic Emotions Predict Undergraduate University Student Success: Examining Effects on Dropout Intention and Achievement. *Front. Psychol.* 8:243. doi: 10.3389/fpsyg.2017.00243
- Spielberger, C. D. & Vagg, P. (1995). Test Anxiety. A transactional process model. In C. Spielberger & P. Vagg (Eds.). *Test Anxiety: Theory, assessment and treatment* (pp. 3-14). Washington D. C.: Taylor & Francis.

Spielberger, C. D. (1980). *Test anxiety inventory: Preliminary professional manual*.  
California: Consulting Psychologists Press.