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Neuromyth Awareness and Brain-Based Knowledge Among Academic Advisors and Academic Support Personnel

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Abstract

Educators' conceptualizations of knowledge can influence their practice, and this practice can in turn influence learners' beliefs (Johnston et al., 2001). Academic advisors and academic support services personnel are instrumental in students' postsecondary experience, yet little research has explored their brain-based knowledge and beliefs. This explanatory sequential study seeks to address that gap by exploring academic advisors and academic support personnel's awareness of neuromyths, general knowledge about the brain, and evidence-based practices. Findings from this study will advance understanding of the variety of forces influencing students' experience and learning.

Aim

The purpose of this study is to examine academic advisors and academic support personnel's awareness of neuromyths, general knowledge about the brain, and evidence-based practices. The study also seeks to learn about the professional development they engaged in between March 1, 2020, and October 1, 2021, explore the relationship between using evidence-based practices with advising students, and examine their interest levels in knowledge about the brain. Finally, the study seeks to understand how academic advisors and academic support personnel perceive the higher education landscape post-pandemic.

Problem

While many educators share a deep desire to facilitate student learning and success, few have a sufficient level of understanding of how the brain learns. In fact, research has shown that educators across contexts and cultures believe neuromyths at high rates (e.g., Betts et al., 2019; Blanchette Sarrasin et al., 2019; Dekker et al., 2012; Dündar & Gündüz, 2016; Gleichgerrcht et al., 2015; Papadatou-Pastou et al., 2017). These incorrect beliefs about learning and the brain, which often stem from a misinterpretation or oversimplification of scientific findings (OECD, 2002), can lead to programming, approaches, and policy recommendations that are ineffective and a drain on valuable resources (Pasquinelli, 2012; Sylvan & Christodoulou, 2010). When put into practice, neuromyths can also promote fixed mindsets (Vaughan, 2017) and cognitive overload (Lethaby, 2016).

Academic advising and academic support services involve a lot of teaching. These personnel have the potential to significantly impact students' perceptions and learning and work very closely with students on issues related to academic engagement, studying, and completion of courses and their program of study. Indeed, research from Young-Jones et al. (2013) found that academic advisors are crucial components of students' experience and can vitally impact a range of factors that influence academic experience, including the development of self-efficacy and practical applications of study skills. Even though advisors and academic support personnel are crucially important to students' educational experiences, little research to date has explored their awareness of neuromyths, general brain knowledge, and evidence-based practices.

Current Research

The research questions guiding this explanatory sequential study are:

1. Is there a difference in awareness of neuromyths, general knowledge about the brain, and evidence-based practices from the science of learning between academic advisors and academic support personnel and across demographic categories (e.g., type of institution, program level, program format, educational attainment)?
2. What types of professional development have academic advisors and academic support personnel attended between March 1, 2020, and October 1, 2021?
3. Is there a relationship between the type of professional development and awareness of evidence-based practices related to neuroscience, psychology, and education?
4. To what extent is there interest by academic advisors and academic support personnel in scientific knowledge about the brain and learning?
5. How do academic advisors and academic support personnel perceive the higher education landscape post-pandemic (i.e., instructional formats, professional development formats, opportunities)?

The research team employed a convenience snowball sampling approach to recruit academic advisors and academic support services personnel to participate in the research. In the first part of the study, participants completed an online survey about their awareness of brain-based knowledge and evidence-based practices as well as the professional development they engaged in. In total, 105 surveys met the criteria for inclusion and will be analyzed using Qualtrics and SPSS. Means and medians will be looked at for each group, Crosstabs and ANOVAs will be used for comparisons across demographics, and if there are significant differences in each group, Kruskal-Wallis H tests will be used to make comparisons across groups.

The second part of this study consists of follow-up focus groups. These focus groups have yet to be conducted but will focus on the professional development programs participants engaged in. Focus group participants will be selected based on their indication on the survey that they are available and interested in participating in a follow-up focus group. Once gathered, this qualitative data will be coded and analyzed using NVivo.

Significance and Implications

Student learning and success is influenced by a variety of factors and numerous people, but to date, much research has focused primarily on instructors. Findings from this study will address the existing research gap by advancing understanding of the brain-based beliefs and knowledge academic advisors and academic support personnel hold. This is crucially important given that one's conceptualization of knowledge can influence practice, and this practice can in turn influence learners' beliefs (Johnston et al., 2001).

References

Betts, K., Miller, M., Tokuhama-Espinosa, T., Shewokis, P. A., Anderson, A., Borja, C., Galoyan, T, Delaney, B., Eigenauer, J. D., & Dekker, S. (2019). *International Report: Neuromyths and Evidence-Based Practices in Higher Education.* Online Learning Consortium. https://onlinelearningconsortium.org/read/international-report-neuromyths-and-evidence-based-practices-in-higher-education/

Blanchette Sarrasin, J., Riopel, M., & Masson, S. (2019). Neuromyths and their origin among teachers in Quebec. *Mind, Brain, and Education, 13*(2), 100-109. https://doi.org/10.1111/mbe.12193

Dekker, S., Lee, N. C., Howard-Jones, P., & Jolles, J. (2012). Neuromyths in education: Prevalence and predictors of misconceptions among teachers. *Frontiers in Psychology*, *3*, 429. https://doi.org/10.3389/fpsyg.2012.00429

Dündar, S., & Gündüz, N. (2016). Misconceptions Regarding the Brain: The Neuromyths of Preservice Teachers. *Mind, Brain, and Education, 10(*4), 212-232. https://doi.org/10.1111/mbe.12119

Gleichgerrcht, E., Luttges, B.L., Salvarezza, F., & Campos, A.L. (2015). Educational neuromyths among teachers in Latin America. *Mind, Brain, and Education, 9*(3),

Johnston, P., Woodside-Jiron, H., & Day, J. (2001). Teaching and learning literate epistemologies. *Journal of Educational Psychology, 93*(1), 223. https://doi.org/10.1037/0022-0663.93.1.223

Lethaby, C. (2016). Learning styles and teacher training: Are we perpetuating neuromyths? *ELT Journal, 70(*1), 16-27. https://doi.org/10.1093/elt/ccv051

Organization for Economic Cooperation, and Development. (2002). *Understanding the Brain: Towards a New Learning Science*. Paris: OECD.

Papadatou-Pastou, M., Haliou, E., & Vlachos, F. (2017). Brain knowledge and the prevalence of neuromyths among prospective teachers in Greece. *Frontiers in Psychology, 8*, 804. https://doi.org/10.3389/fpsyg.2017.00804

Pasquinelli, E. (2012). Neuromyths: Why do they exist and persist? *Mind, Brain, and Education, 6*(2), 89-96. https://doi.org/10.1111/j.1751-228X.2012.01141.x

Sylvan, L. J., & Christodoulou, J. A. (2010). Understanding the role of neuroscience in brain based products: A guide for educators and consumers. *Mind, Brain, and Education, 4*(1), 1-7. https://doi.org/10.1111/j.1751-228x.2009.01077.x

Vaughan, T. (2017, March 27). *Tackling the 'learning styles' myth*. Teacher Magazine. https://www.teachermagazine.com/au_en/articles/tackling-the-learning-styles-myth

Young-Jones, A. D., Burt, T. D., Dixon, S., & Hawthorne, M. J. (2013). Academic advising: does it really impact student success?. *Quality Assurance in Education*, 23(1), 7-19. https://doi.org/10.1108/09684881311293034

Author Biography

Ellana Black is a PhD student in Drexel University's School of Education. Her research foci include the learning sciences (specifically Mind, Brain, and Education science), online learning, second language teaching and learning, higher education, and instructional design. She holds a bachelor's degree in Spanish from the University of Iowa and a master's degree in Teaching English as a Second Language from St. Cloud State University in Minnesota. Her master's thesis, "Second language listeners' metacognitive strategy use," explored the relationship between university-level English language learners' metacognitive awareness and their listening comprehension and growth. Ellana has facilitated online professional development events for international English teachers; taught English as an additional language and English for Academic Purposes to adults and post-secondary learners in the United States, Brazil, and online; and worked as a professional academic advisor at several colleges and universities in the United States.