



Editorial: The Role of Educational Psychology as a Bridge Between Neuroscience and Education

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Editorial on the Research Topic:

The Role of Educational Psychology as a Bridge Between Neuroscience and Education

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In this special issue, we aimed to identify the role that school psychology and educational psychology can play in bridging the gap between education and educational neuroscience as suggested by Mason (2009).

In Wilcox et al., we assert that school psychologists have a unique knowledge and skill set that provides them with the tools to build this bridge (National Association of School Psychologists, 2020). For example, school psychologists can use their training in data-based decision making to mitigate the transmission of neuromyths in education by helping teachers and administrators evaluate research and make informed decisions about how well it translates to their specific context. Additionally, school psychologists have training in general instructional practices and academic interventions that support their application of neuroscientific findings to practice. Finally, school psychologists have training in school-wide practices that support learning, and often work at school and district levels, providing them with the opportunity to support implementation of evidence-based practices and de-implementation of ineffective practices. School psychology has more to offer in building the bridge between school psychology and educational neuroscience than is currently being realized in research or in practice.

Coch and Daniel note the continuing gap between neuroscience and education and point to the role of intermediaries in other fields to bridge similar gaps. They argue that the role of bridging this gap or translating neuroscientific findings to education is complex and requires deep understanding of the context of schools and classrooms. This will require applied research in schools to create hypotheses that can be tested and are useful to teaching practice. Unfortunately, although many school psychologists have training in research methods, they typically have limited opportunity in their roles to utilize these skills. The authors argue that this role would best be served by creating a new profession rather than school psychologists serving in this role.

Grospietsch and Lins provide a summary of both the theoretical and empirical state of the literature on neuromyths in education. They argue that neuro- and brain- have been attached to many areas, including education, to provide a sense of scientific validity to ideas that often do not actually have any scientific validity. Teachers are “taught” some of these neuromyths in the training programs, or they come across them during their practice. They ended by highlighting some of the current research gaps. For example, we need to better understand how teacher belief in neuromyths affects the time and money spent on practices promoting neuromyths and how this, in turn, affects student outcomes.

Anderson addresses knowledge specific to the lack of understanding about dyslexia among school personnel and what can be done to rectify this. For example, a commonly endorsed neuromyth about dyslexia is that it involves seeing words or letters backwards. Current gaps in teacher training contribute to these misunderstandings. Anderson asserts that professional development, including information about the reading network in the brain and the disruptions that cause dyslexia, could help to improve teacher understanding of the science of reading, noting that developmental psychology is situated to inform this professional development to help bridge the gap between education and neuroscience specific to dyslexia.

In a longitudinal study using both eye-blink rate (EBR) and fMRI, Gotlieb et al., aimed to better understand the neurophysiological markers of deep processing in a diverse sample of urban adolescents from a school district with a high rate of low SES. They suggest that their findings provide proof of concept for the potential of EBR in measuring processing that leads to long-term memory. In this they aim to help identify neuroscientific measurements that have potential utility in schools to better understand, and potentially support, student learning.

The learning disability identification process, especially the use of neurocognitive assessments, is an area of contention in school psychology research, and many meta-analyses suggest that neurocognitive assessments do not support intervention planning. Decker and Luedke critically reviewed these meta-analyses and the methodological validity of the studies analyzed within them. They found that few of the studies included in these meta-analyses used a methodology valid to directly measure the effect of the assessment on intervention outcomes. They also found inconsistent effect size reporting. They assert that more research is needed in this area including critical reviews and greater transparency in meta-analyses before results can be used to guide policy decisions. They also suggest that educational psychology researchers play an important role broadening the

focus from behavioral outcomes to also understand underlying processes and integrating these components of student function in assessment and intervention planning.

Although the call for school and educational psychology to help bridge the gap between neuroscience and education was initially made over a decade ago (Mason, 2009), the gap remains. This special issue highlights the skills, training, and contextual understanding that would be necessary for a role to achieve this. We argue that school psychologists have these skills and so could support this bridging in multiple areas including assessment, intervention, and system-level changes (Wilcox et al.). In contrast, Coch and Daniel disagree, suggesting that a new position is needed to create the bridge. Others address the intractable problem of neuromyths in educational systems (Anderson; Grospietsch and Lins). Gotlieb et al., identify a neuroscientific technique, EBR, that has potential application in schools to better understand and support student learning. Finally, Decker and Luedke note some of the challenges with current meta-analytic research in the area of the use of neurocognitive assessments to identify and inform interventions for students with learning disabilities. In summary, the articles presented in this issue offer several routes to bridging the gap between neuroscience and education, including harnessing existing roles, creating new roles, developing myth-busting approaches and employing new research methods. It is likely that no single approach by itself will be sufficient, but a multi-pronged approach could allow the gap identified over a decade ago to finally be bridged.

AUTHOR CONTRIBUTIONS

GW initiated the Research Topic and drafted the manuscript. LM, ZH, and ED contributed to revising and editing the manuscript. All authors contributed to the article and approved the submitted version.

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