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The International Journal of Management Education

journal homepage: www.elsevier.com/locate/ijme

Research notes

Applying neuroplasticity to educating agile-thinking managers

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ARTICLE INFO

Article history:

Received 31 July 2015

Received in revised form 18 January 2016

Accepted 19 January 2016

Available online 3 February 2016

Keywords:

Teaching –to-repeat versus –to-vary

Familiarity

Stability

Rigidity

Fixedness

Obstacles

Agile thinking

Plasticity

Brain neurology

Psychology

Synapses

ABSTRACT

Findings in neuroplasticity confirm that the brain continues to change over time, and that different types of experience result in different types of change (plasticity). Further, the type of plasticity change enables (or disables) or favors (or discourages) different thinking capabilities. Applying these findings, the authors offer an argument that the type of change enabled by teaching-to-repeat (T2R), a passive learning approach prevalent in business education, prepares students' brains to perform in a manner quite different from that valued by business practitioners. Of perhaps greater importance, educational methods of this sort actively discourage the type of brain development consistent with desired capabilities.

The authors propose pedagogy – teaching-to-vary (T2V), consistent with development of a different type of plasticity. They argue that by implementing techniques designed to foster variation, working against the brain's tendency toward a preference for the familiar, business educators can both mitigate T2R effects, and better prepare students' brains to manage in uncertain, often turbulent environments. Caveats and suggestions for future research are offered in closing.

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1. Introduction

Both industry and academia have long called for substantive change in business education (e.g., Berggren & Söderlund, 2014; Cheit, 1985; Louis, 1990; Porter & McKibbin, 1988). At the heart of the issue is the view that business education does not sufficiently take into account needs of prevailing business practice, and that this has resulted in a “gap” between preparations provided and skills or capabilities required (e.g., Arum & Roksa, 2011; Lakhil & Sevigny, 2014; NACE's Job Outlook, 2016 Survey; Shah, Grenbennikov, & Nair, 2015; The Bloomberg 2015 Jobs Skills Report; The Chronicle of Higher Education 2013 Report on the “Employment Mismatch”). Practitioners' concerns largely involve the perception that graduates arrive on the job content-rich, yet ill-prepared to cope managerially with the dynamism of today's marketplace (e.g., Chia & Holt, 2008).

Many, like Tompkins (2001), describe the work environment as one in which the “right” answers are not clear, advising that students need the skill to think “anew” or in different ways that may involve defining problems differently. Yet too often

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practitioners find business graduates unprepared to function productively when situations are ambiguous or changing. [Smith \(2003\)](#) reported evidence that graduates are unable to think effectively or handle the demands of the job upon being hired. [Humphries and Dyer \(2005, p. 170\)](#) observed a “lack of questioning” (LOQ) phenomenon in the workplace, with graduates possessing a passive posture or demeanor, too willing to favor the status quo. They argue that this acceptance of situations or circumstances as “given” creates an illusion that works against good managerial decision-making. [Athanassiou, McNett, and Harvey \(2003, p. 534\)](#) observe that students “... lack an ability or willingness to frame interesting questions.” Similarly corporate recruiters characterize MBA graduates as being “... unable to step outside of their comfort zones to explore new ways of thinking and doing” ... unable “... to face today’s problems and to acquire new knowledge” ([Wankel & DeFillippi, 2006, p. 387](#)).

Some, like [Mintzberg and Gosling \(2002\)](#) suggest that in its approach, traditional business education separates itself from business reality in that it is predicated on types of discipline-related borders (or boxes – theories/concepts devoid of context) that don’t align with realities that managers must face. [Ghoshal \(2005\)](#) observes that presentations of management theories are decontextualizing, not revealing their ideological underpinning thereby freeing students in business settings from any sense of moral responsibility for conforming behaviors. Like others, [Wright, Paroutis, and Blettner \(2013, p. 92\)](#) address aspects of content, questioning the managerial usefulness of the “strategic tools we teach in business schools.”

But how do pedagogies relate to outcomes? This question neither new, nor unique to business education. Numerous learning methodologies, either in support of or based on a variety of theoretical foundations, have been advanced in the education literature generally. These range from behavioral to constructionist; from collaborative to game-based (See, for example, [Henry, 1997; Mills, 1998; Neisser, 1967; Serva & Fuller, 2004; Skinner, 1954](#)).

Despite this plethora of options available to business educators, researchers still argue that learning analytic techniques alone do not necessarily translate into better decision-making (e.g., [Mintzberg & Gosling, 2002](#)). More recently [Boyatzis \(2014\)](#) argues that, from a neurological perspective, an excessive educational emphasis on analysis and analytical tools taken in business programs can lead to students becoming less social and less open to new ideas. Simply listening and talking about leadership doesn’t necessarily make for good leaders, and managers must work with (or lead) people in accomplishing various tasks. Even knowing what to do is not the same as knowing when or how to do it, or, in a managerial context, how to get it done. Today this is increasingly likely to involve being open to new ideas, and having the inter-personal skills needed to relate to and motivate others with widely varying backgrounds in increasingly collaborative/cooperative relationships.

Business practitioners have specifically and repeatedly made clear that, from their perspective, better educational preparation means better production of graduates with the skills and capabilities needed to handle change, especially rapid change in complex contexts. To these ends, most educational researchers acknowledge that “passive” learning is inferior to “active” learning, and that “active” learning appears to enable more consistently positive outcomes (e.g., [Matthews, 2014; Weimer, 2012](#)). Less obvious, however, is the type of “active”-ness needed when the goal is to produce both a disposition towards change and a propensity for effective participation in change. Research results now indicate that a neurological perspective can be used to provide new insights into the ways different forms of learning condition the brain to operate in one manner or another. Effects of this sort have neither been considered, nor can their impacts be understood, in the context of more traditional learning perspectives. We argue that what transpires at the neurological level produces results evidenced at the psychological and behavioral levels (e.g., [Hannah, Balthazard, Waldman, & Jennings, 2013](#)).

Further, discussions concerning appropriate use of active and passive educational methods indicate that few suspect that “passive” learning might produce long-term negative effects. Recently published findings in brain research, however, indicate that the potential for such effects neurologically is very real. Through examination of brain plasticity, neuroscience is now able to provide insights into the different types of change that favor fixed or agile thinking. These findings permit development of an improved understanding of the potential long-term effects of “passive learning.” Perhaps more productively, they allow us to identify those critical element(s) in “active learning” that can be used to develop agile-thinking business students, and graduates better attuned to the management of change.

The Task at Hand: We begin by further defining the agility construct offered by others to underscore the significance of agile thinking in a managerial context. Next we ask, “How does the brain change?” and, “How might advances in our understanding of neuroplasticity (the brain’s ability to change) be used to better prepare business students to manage in the context of dynamic business environments?”

A brief explanation of the key points of neuro-plasticity is offered to provide perspective on how these relate to our interest in business education, and a comparison of representative passive and active teaching methods is offered. The characteristically passive method (often found in business education), is referred to as teaching-to-repeat (T2R). This is compared to a representative “active” learning approach that we call teaching-to-vary (T2V). From a neurological perspective, these two are contrasted to illustrate the quite different plasticity effects favored by each, and the relationship between these effects and the development of agile thinking capabilities. Research on the neurological concept of “plasticity” now makes it possible to compare forms of learning like these through examination of observable changes in brain physiology (e.g., by comparing MRI revealing differences in grey matter densities). This in turn allows consideration of how different forms of plasticity lead to different psychological and thinking outcomes, e.g., rigidity versus agility; creative, critical versus reflective thinking; affect versus cognitive. Our argument seeks to support the importance of this type of research for improving the educational preparation of business managers in the modern era.

In our final section, we offer teaching and future research suggestions based on the differences in neurological and agility-related outcomes apparent from the comparison of the two representative methods.

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