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Growth Mindset in Adult Learning: Systematic Literature Review

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Abstract: We conducted a systematic literature review on mindsets to understand how a growth mindset is conceptualized and investigated in adult learning scholarly work.

Keywords: growth mindset, individual mindset, team mindset, organizational mindset, implicit person theory

Introduction

Research has emphasized the importance of having a growth mindset to help individuals and companies continually adapt to an ever-changing environment. Originally coined by Carol Dweck, a growth mindset, based on implicit person theory (IPT), embodies the thought that there is always potential to develop intellect, to increase talent, and to adjust moral understandings (Dweck, 2006). Despite its popularity, there has not been a systematic literature review conducted in adult learning scholarly work. We have addressed this gap, detailing empirical investigations of individual, team, and organizational mindset research in different disciplines.

Problem Statement and Significance

Mindset has been studied most extensively in K-12 educational settings and to a lesser extent in higher education, workplace learning, and adult education. Most empirical studies have been built on findings regarding the malleability of mindset through interventions helping students understand that intelligence can be developed. The majority of findings are related to academic outcomes, such as mathematic performance, reading test scores, and higher grades overall (e.g., Blackwell, Trzesniewski, & Dweck, 2007). Indeed, Dweck's work is highly cited in education; the Web of Science database includes 9757 references citing studies of "implicit person theories" as well as "mindset." It would be expected that mindset theory would expand into adult and workplace learning as well.

Research Purpose and Design

Our interest is in discerning the ways that mindset is being investigated relative to adult learning and to better understand if there are shifts in the way the construct is conceptualized and investigated in comparison to the earlier literature which focuses on children and adolescents. Therefore, the purpose is to clarify the construct of mindsets and review the reported effects of mindsets at different levels (individual, team, and organization). Our focus is on adult populations and published empirical evidence. Therefore, our research questions are:

1. How have mindsets been conceptualized and measured in adult learners?
2. What settings for adult learning or development have been studied in mindset research?
3. What are the empirically identified effects of mindsets in workplaces and higher education?

Review of Literature

We provide an overview of individual, team, and organizational mindsets. We searched the mindset literature to more closely examine the variables that coincide with mindset.

Mindset as a Self-theory

Dweck and her colleagues originally investigated implicit person theory (Dweck & Leggett, 1988). An entity theorist sees abilities and intellect as fixed or inherent—entity theorists have a “fixed mindset.” Those who believe that abilities and intellect expand with practice are called incremental theorists or those with a growth mindset (Dweck, 2006). As the body of literature expanded, the mindset construct grew to refer not only to intelligence but also creativity and attitudes toward relationships. Studies have explored how mindsets can impact adult learning in organizations. Mindsets have been found to have important implications, particularly when considering creativity because of the need for trial and error (Hüther, 2016). Interventions also demonstrate that mindsets can be changed for adult learners yielding positive learning outcomes (Aronson, Fried, & Good, 2002; Dweck, Walton, & Cohen, 2014).

Team Mindsets

Popular use of the term “team mindset” conveys a collective expression of the individual mindset definitions discussed above. For example, “the cultural change that comes into play with DevOps is so key to the whole process that if you don’t culturally change the team’s mindset, it won’t succeed” (Job, 2018). This definition of mindset connotes a group cultural belief, value set, or epistemology related to their creative projects. Given this type of popular discussion of team mindset, we sought to review how it has been empirically investigated.

Organizational Mindsets

Organizational mindsets refer to “the belief that [the organization] and its workforce have about the nature of talent and ability” (Dweck et al., 2014, p. 2). “Culture of development” organizations enhance learning opportunities for their employees and help them develop greater skills and abilities. “Culture of genius” organizations, “worship” talent and “assert that employees either have it or they don’t, when it comes to skills and learning capabilities” (Dweck et al., 2014, p. 2).

Methods

To examine the effects of mindsets in different industries and universities, we systematically reviewed literature to identify previous empirical studies conducted in adult learning settings. Systematic reviews include clearly formulating the question, defining criteria, identifying relevant studies, appraising their quality, and summarizing the evidence by use of an explicit methodology (Moher, Tetzlaff, Tricco, Sampson, & Altman, 2007).

Search Process and Selection Criteria

Our first step was to define the keywords and operators to use and identify the 11 databases to search. Initial searches testing the search string led to the final Boolean search string including “growth mindset” AND (employee OR organization OR workplace OR "higher education" OR college OR university) NOT (elementary OR K-12 OR K12 OR child*) for each database. To support the selection processes, we established several criteria for inclusion and exclusion: a) published in peer-reviewed journals in English; b) full text c) published between 1993 and 2017; d) empirical studies examining the effects of mindsets; and e) exclude K-12 studies. The date range (1993-2017) captures citations of Dweck’s work on implicit theories of intelligence which were referenced as early as 1993. We conducted our review in 2017.

Two authors conducted an independent first screening of titles, abstracts, and scanned the articles for the inclusion and exclusion criteria. The resulting studies included (number in parenthesis): ABI/Inform Collection (22), Academic Search Premier (10), Business Source Premier (4), Communication Source (1), Education Research Complete (13), PsycArticles (5), Psychological and Behavioral Sciences Collection (4), PsycINFO (14), ERIC (6), JSTOR (8), and Web of Science (15). This search of 11 databases yielded 102 articles. After removing book reviews (N=2), those not referencing Dweck (N=20), and those referencing elementary and secondary students (N=28), 52 articles remained; removing duplicates left 36 articles which we included in a full text review.

Review Procedures

Prior to the full text review, we established two codes for acceptance based on the criteria discussed above and 6 codes with reasons to exclude a study. Two authors conducted the second stage of the full text review by applying the inclusion/exclusion codes discussed above to review 36 studies. We eliminated 18 articles during this rigorous review. We ultimately reached a consensus and selected 18 articles which we analyze briefly below in the findings.

Findings

To answer the research question of how mindsets have been conceptualized and measured in previous studies, we found that, subsequent to Dweck and Leggett's (1988) identification of the connection between a child's implicit theory of intelligence and motivation to learn, the concept of mindset has been explored with an ever-broadening array of variables. Researchers have explored human "core qualities" (Dweck, 2012) and the connection between mindset and evaluation of others (Gutshal, 2013; Heslin & VandeWalle, 2008; Ozduran & Tanova, 2017), leadership (Bloch, Brewer, & Stout, 2012; Dweck, 2012; Özduran & Tanova, 2017), creativity (Gheith, & Aljaberi, 2017; Hass, Katz-Buonincontro, Reiter-Palmon, 2016; Holm, 2015), resistance to setbacks or demonstrating resilience (Aditomo, 2014; Keena, 2015), bolstering mindfulness (Holm, 2015; Lindsay, Kirby, Dluzewska, & Campbell, 2015), and proficiency at game play (Lee, Heeter, Magerko, & Medler, 2012). All 18 articles included in this review draw upon a conceptualization of the term mindset that is consistent with that of Dweck and associates. These conceptualizations of mindset are rooted in at least two statuses: growth and fixed. While 12 of the articles define mindset through dualist terms (growth or fixed), four define it as a scale (growth to fixed) and one offers no specific definition of mindset. Thus, there is a certain degree of consistency for looking at the construct of mindset.

We examined the research settings of mindset in terms of countries and industries where the research was conducted. Almost 55% of the research was conducted in university settings, while other settings included hotels, government organizations, real estate and investment offices and one prison. 19 country locations were reported and 22 organizations were reported, as some studies were conducted in multiple countries and multiple organizations. Geographically, investigations of mindset have spread from North America to Europe (four studies), Asia (three studies), and Oceania (one study) making this topic an international one. The research we studied occurred primarily in 2012-2017, with an outlier in 2008. Of the 17 studies, 59% of them took place between 2015 and 2017, with the remaining 41% occurring between 2008 and 2014.

Growth mindset implications have been tested and investigated in various organizations. In regard to adult academic outcomes, individuals' growth mindsets were positively associated with improved academic performance (Ravenscroft, Waymire, & West, 2012; Pennington & Heim, 2016), seeking difficult challenges (Lee et al., 2012), enhanced motivation for academic goals (Aditomo, 2015; Gheith & Aljaberi, 2017), and reviewing feedback (Lee et al., 2012; Forsythe & Johnson, 2017). Outside academia, growth mindset enhances creativity (Holm, 2015), improves relationships and willpower (Dweck, 2012), reduces stress and increases well-being (Holm, 2015; Lindsay et al., 2015), and reduces life dissatisfaction (Waithaka, Furniss, & Gitimu, 2017).

Although few researchers focused on team and organizational levels of mindsets, we found implications for team mindsets and organizational mindsets from several studies (Pennington & Heim, 2016; Gutshall, 2013; Bloch et al., 2012; Hanson, Bangert, & Ruff, 2016; Özduran, & Tanova, 2017). For example, participants reported a weaker growth mindset when they were tested under stereotype threat and in single-sex groups (Pennington & Heim, 2016), indicating the importance of group dynamics to stereotype threat. Negative gender-maths stereotypes, pertaining to women's social identity, may hamper a growth-ability mindset (Pennington & Heim, 2016). Another study by Gutshall (2013) illustrates the importance of team members' belief on others. Gutshall's (2013) research exposes the connection between teachers' beliefs about the general ability to grow or change and his or her likelihood to view an individual student's ability in a similar manner. Other studies that suggest collective or group mindsets focus on leadership mindset (Bloch et al., 2012) and managers' mindset (Özduran, & Tanova, 2017). Collectively, these studies suggest a relationship between individual and group or team mindset. Findings indicate that leaders can influence others' mindsets and outcomes. Hanson, Bangert, and Ruff (2016) also investigated the way that a principal's mindset impacted the school's growth mindset.

Discussions

Researchers are developing and validating instruments and defining correlations between mindset and other constructs to help us better understand mindset's antecedents and precedents. It should be noted that Dweck and associates developed multiple implicit theory scales; most use a 6 point design ranging from strongly agree to strongly disagree. They discard scores between 3-4 leaving a tendency toward fixed (entity) beliefs and growth (incremental) beliefs (Chiu, Hong, & Dweck, 1997). We have some concern about the level of fidelity in instruments and analytical methods which have been validated in published research studies by Dweck and colleagues in five publications (Dweck, 2000). Articles cite websites and even

Dweck's popular book, *Mindset: The New Psychology of Success* rather than following analytical methods which have been reported in peer reviewed publications. Furthermore, six of the quantitative methods studies failed to indicate that they followed the recommended analytical approach or provide their own validity and reliability data.

There remains a narrowness to the literature on mindset. We found that most mindset research was conducted with college students in universities. While findings are being extended to workplaces, more studies should be done outside universities, examining employees' and managers' mindsets. Ten studies were conducted outside the U.S. and suggest that there is growing interest in adult learner mindset internationally and an opportunity for expanding inquiry in diverse settings. It also appears that the amount of studies in this area of research is increasing, which is in line with our suggestion of growing interest in mindsets and coincides with our recommendation of conducting more studies in workplaces.

While individual mindset research expands in workplace settings, very limited research has focused on team-level mindsets. Yet, increasingly high performance workplaces are defined as collaborative and teamwork is a valued cross-cutting skill (Beyerlein & Han, 2017). In two studies, we found that one's view and mindset about his/her team members can change the performance outcome (Gutshall, 2013; Özduran, & Tanova, 2017). On the other hand, the environment (team or organizational level) has a big impact on mindsets as well. Despite this, we found that most authors examined the individual level of analysis when identifying the effect of growth and fixed mindset. This shows a lack in team or organizational mindset point of views.

Implications for Practitioners and Future Research

This systematic literature review provides a list of research studies that have been conducted with adults in universities and in other work settings. These studies can provide a starting point for adult educators to use as they develop and document interventions to encourage individuals and teams to embrace growth mindset. For example, workplace initiatives can encourage a small group discussion or a training session about how mindsets impact adults as professionals and educators, and how each group might explore ways to be more learning-focused and open-minded toward growth.

Secondly, scant research on team mindset suggests an opportunity to conduct empirical research with adult learners and validate whether the team mindset is a unique construct or if it is an aggregated mindset of individuals. Scholars also need to examine how the team mindset can impact organizational outcomes, considering differences between team and individual outcomes and whether team mindset interventions foster individual development towards a

growth mindset. Finally, we found a variety of cases of applying mindset principles (e.g., inmates, teachers, students, employees, and managers), but most of them were student-focused studies. Future researchers can expand the research to examine the effects of mindsets in more diverse workplace settings.

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