

Development of the Self-Efficacy as Faculty Change Agent for Diversity (SE-FCA-D) Scale

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This publication provides an overview of the development of the Self-Efficacy as Faculty Change Agent for Diversity (SE-FCA-D) scale. The 5-item scale recently appeared as an additional module on the Higher Education and Research Institute (HERI) Faculty Survey 2019-2020 for the 10 BUILD programs within the Diversity Program Consortium that are participating in the Enhance Diversity Study, supported by the National Institutes of Health (NIH U54GM119024). The piloted scale is meant to measure DPC Hallmark of Success FAC-16: “Strong self-efficacy to act as a change agent to enhance diversity in biomedical research and research training environments” (DPC, 2019). Once data are available, scale validation will move forward and findings will be shared.

Keywords: diversity in higher education, organizational change, change agency, faculty leadership, scale development, program evaluation, biomedical research programs, enhance diversity study

CONTEXT

The national longitudinal evaluation (*Enhance Diversity Study*) of the Diversity Program Consortium’s Building Infrastructure Leading to Diversity (BUILD) and National Research Mentoring Network (NRMN) initiatives, is guided by the identification of crucial outcomes in one’s progression through the biomedical career pathway (e.g. entry into an undergraduate biomedical major, lab experience, graduation, entry to graduate school, research productivity). These outcomes are thought to represent key transition points in the journey from undergraduate to graduate to early-career faculty/researcher to senior faculty/researcher. These outcomes are also considered to encompass vital components for shifting institutions to more effectively support diversification of the biomedical sciences. The *Hallmarks of Success* directly guide the

focus of evaluation efforts, including the measures that appear on the *Enhance Diversity Study* student and faculty surveys.

The Diversity Program Consortium (DPC) Hallmarks of Success are: ... a set of key indicators of the likelihood of success in pursuing a career in biomedical research.... *Student/mentee Hallmarks* are a mix of psychosocial factors and educational and professional accomplishments and experiences... *Faculty/mentor-level Hallmarks* include program-relevant activities and behaviors among faculty, including increased participation in professional development activities for improving teaching, and in mentorship activities and training, as well as improvement in the quality of mentoring based on identified behaviors and attitudes.... *Institutional-level Hallmarks* include the availability of resources and opportunities for students and faculty that are associated with their development. (McCreath et al., 2017, pp. 18-19).

The first five years (2015-2019) of the DPC initiatives were guided by an original set of Hallmarks of Success (Diversity Program Consortium, 2019). McCreath et al. (2017) provide a fuller description of the development and importance of the Hallmarks. When Phase II of the Diversity Program Consortium began in 2019, the Hallmarks were revised and updated. Several new Hallmarks were added to the lists, including **DPC Hallmark of Success FAC-16**: “Strong self-efficacy to act as a change agent to enhance diversity in biomedical research and research training environments” (Diversity Program Consortium, 2019). The complete list of Phase II hallmarks can be found on the Diversity Program Consortium website (Diversity Program Consortium, 2019).

The Coordination and Evaluation Center (CEC) at the University of California, Los Angeles (UCLA), examined existing evaluation tools and materials to gauge the extent to which there was adequate coverage of original/new/revised Hallmarks. New measurement tools were identified and/or created in places where little to no data were being collected. This technical report provides an overview of the development of the ***Self-Efficacy as Faculty Change Agent for Diversity (SE-FCA-D)*** scale. The 5-item scale recently appeared as an additional module on the Higher Education and Research Institute (HERI) Faculty Survey 2019-2020 for the 10 BUILD programs within the Diversity Program Consortium.

DEVELOPMENT OF SELF-EFFICACY AS FACULTY CHANGE AGENT FOR DIVERSITY SCALE

The development of the Self-Efficacy as Faculty Change Agent for Diversity (SE-FCA-D) scale began with a literature search and review of strategies to increase diversity, including change agency in higher education (definitions of key terms begin on page 3). The search extended into validated practices for measuring self-efficacy constructs. The researchers/scale developers also discussed their experiences working with faculty and institutional leaders (in this and previous studies) who described themselves as “agents of change.” The team was tasked with developing a scale that could be piloted with faculty survey respondents in the *Enhance Diversity Study*. Additional parameters included utilization of a 5-point response structure for the survey items to be consistent with existing survey items.

The scale developers drafted over 30 items for consideration based on a literature search (see Summary of Literature section) and discussions, and that adhered to best practices in measuring self-efficacy (Bandura, 2006). The developers made sure to articulate behaviors that the respondent would have some control over and covered multiple relevant aspects of the domain, while also including various degrees of challenges and/or impediments to the process that would need to be overcome by the faculty member. Scale developers established consensus around key terms/definitions (see Key Terms section), deliberated about the best items and commenced pretesting methods. Eight items were presented to a panel of 15 research experts within the CEC (education, medicine, and public health scholars, statisticians, evaluators, directors and center coordinators) and a structured rating and discussion process ensued. Feedback on high priority items, wordsmithing, and structure of response options were considered. Scale developers then engaged in

several rounds of CEC-internal piloting paired with a think aloud process with two available staff (examining min and max item scores and overall variability in responses with distinct response options) to settle on the final set of items and available response options (see Self-Efficacy as Faculty Change Agent for Diversity section). What resulted is a measure of perceived capabilities across various important tasks a faculty member might engage in while trying to support diversity and inclusion efforts at an institution of higher education.

Several salient ideas and considerations guided scale development. The first was a reminder that we were tasked with measuring *self-efficacy*, which “refers to an individual’s belief in his or her capacity to execute behaviors necessary to produce specific performance attainments” (Bandura, 1977). Self-efficacy, or a belief in one’s competence related to a task, is distinct from actual competence in performance of the task. The scale developed does not measure whether someone is or is not a change agent (performance) but instead their degree of confidence or certainty that they could in fact execute listed change agent actions (self-efficacy).

A second major source of deliberations was around item response structure and labeling. Developers explored the appropriateness of action, agreement, belief, confidence, and certainty. The developers also considered ceiling effects and potential use of an expanded list of response options (to increase sensitivity). Final instructions for completing the scale ask for respondents to “Rate *how certain* you are that *you can do* the following tasks *as of now*.” Respondents may select from (1) Most likely cannot (5% certain), (2) Likely cannot (25% certain), (3) More likely can than cannot (50% certain), (4) Likely can (75% certain), or (5) Most likely can (95% certain). Response options purposefully exclude absolute certainty that one can or cannot (100% certain or 0% certain) complete tasks, in an effort to maintain variability in responses. Pretesting showed the 5-point scale including absolute certainty anchors as largely producing results in a 3-point range. With the softening of the edges of the scale (95% certain and 5% certain), greater variability in responses was achieved.

Third, the scale developers were mindful of potential applications of the scale, even beyond the DPC’s *Enhance Diversity Study*. While the Hallmark of Success (FAC-16) specifically mentions diversifying biomedical research and research training environments, the SE-FCA-D scale does not include reference to a particular field or discipline. This move is in alignment with other approaches to measurement of Hallmarks within the DPC. Given the faculty sample in the Enhance Diversity Study is largely, if not entirely, from biomedical fields, one can still safely infer results extending to biomedical research and research training environments.

In thinking about the levels of difficulty of supporting diversity and inclusion efforts (classroom, lab, department, school, institution, field), scale developers settled on general change at the institutional level, since it is the most tangible ultimate transformation goal of the DPC initiatives. Future research with the scale could include the use of an expanded list of response options (interval or ordinal) and/or exploration of the multiple layers a change agent might navigate.

The SE-FCA-D scale was created to show that while people perceive themselves as capable of being agents of change (exercising agency), they may encounter other agents and institutional structures that amplify or impede change. To measure self-efficacy in this situation, we identified tasks by increasing levels of difficulty to measure the agent's overall level of certainty that they can create changes related to diversity, equity, and inclusion efforts.

KEY TERMS

Change Agent (Grimsley, 2015): is a person from inside or outside the organization who helps an organization transform itself by focusing on such matters as organizational effectiveness, improvement, and development. A change agent usually focuses his efforts on the effect of changing technologies, structures, and tasks on interpersonal and group relationships in the organization. The focus is on the people in the organization and their interactions.

Faculty Change Agent for Diversity: A faculty member within a higher education institution who challenges the institution to transform itself on matters related to diversity, equity and inclusion. Faculty

may tackle initiatives geared at diversifying student, faculty, and/or staff populations, changing the structure and intention of academic programs, and/or revising policies and procedures to better recruit, maintain, and serve diverse populations.

Self-Efficacy as Faculty Change Agent for Diversity (SE-FCA-D): A faculty member’s belief in their capacity to transform an institution of higher education (from within) on matters related to diversity, equity, and inclusion.

A *change agent* is sometimes called an *agent of change* or *change advocate*. The FAC-16 DPC Hallmark of Success places the emphasis on the belief (self-efficacy) that an individual can act as an ‘agent’ to ‘change’ the institution. The resulting SE-FCA-D scale also places the emphasis on the faculty as agent and what actions might be within their control.

TABLE 1
5-ITEM SELF-EFFICACY AS FACULTY CHANGE AGENT FOR DIVERSITY SCALE
(SE-FCA-D)

| Scale Element | Scale Content |
|------------------|---|
| Prompt | Rate <i>how certain</i> you are that <i>you can</i> do the following tasks <i>as of now</i> ... |
| Response Options | (1) Most likely cannot (5% certain), (2) Likely cannot (25% certain), (3) More likely can than cannot (50% certain), (4) Likely can (75% certain), (5) Most likely can (95% certain) |
| Item Stems | Play an important role in increasing diversity, equity, and inclusion at my institution Convince other faculty and institutional leaders that diversity, equity, and inclusion is a priority Navigate barriers to dismantling hostile climates Persist through professional challenges to advocate for diversity, equity, and inclusion Influence institutional policies and structures to support diversity, equity, and inclusion |

SUMMARY OF LITERATURE

The term, change agent or agents of change, has been explored in analyses of individual actions and structural effects within societies or organizations. Kurt Lewin, a foundational theorist in organizational development and change, examined the resolution of social conflict and the role of organizations and change, positing that an individual’s group was the foundation for the individual actions, perceptions and feelings (Burnes, 2004). Lewin’s three step model of change (unfreeze, change, refreeze) was foundational to organizational development and change theories (Burnes, 2004). Over time, the study of change within organizations and individuals became a multidisciplinary topic that spans psychology, sociology, anthropology, leadership and management (Agócs, 1997, Cameron & Green, 2019).

The term ‘change agents’ is used in organizational management theory to describe an individual who creates change within organizations (Cameron & Green, 2019; Grimsley, 2015). Bensimon, Down, Stanton-Salazar, Davila (2019) describe an institutional change agent as a person with capital within an organization or within society who possesses the power to help students and who possesses an awareness of how culture norms and institutional practices have created structural inequities. Institutional change agents can use their position to articulate change to support system-wide equity. In this scale’s development, the term ‘institutional change agent’ informed the item ‘Influence institutional policies and structures to support diversity, equity, and inclusion.’

While ‘change agent’ refers to the individual’s influence within an organization, the term ‘agents of change’ is linked to the individual’s agency. The social cognitive theory of Bandura (2006) asserts an agentic theory of human development where people exercise agency (formed intention, conceptualizing, planned action and human self-awareness) in determining the organizational structures where they live.

Social systems are not separate, but products of people as an individual's influence is part of the cause for structure. People are not lone agents, but work in collective agency to achieve group goals and collective action at a societal level can regulate social controls. Closely linked to agency is a person's firm belief in his/her/their ability to produce a desired effect (self-efficacy). This belief impacts the "cognitive, motivational, affective, and decisional processes" (p. 170) that determine the optimism, perseverance and motivation needed to act. Efficacy beliefs determine how opportunities and impediments are viewed. This literature informed the development of the scale through measurement of the degree of certainty that a faculty member believes they can play a role in increasing diversity (behavior for a desired effect), convince other faculty and institutional leaders (collective agency), and persist through professional challenges (self-regulation, persistence, motivation).

It is worth noting that this scale does not identify impediments, types of changes or any specific goals. The item stem specifies diversity, equity, and inclusion which implies systemic barriers to definitions of diversity, historical contexts, and environments that are restrictive. The literature describes these environments to include chilly or hostile climates, overload or burnout, underrepresentation, inequitable evaluation, devaluation of research area, biases, stereotype threat, tokenism, micro- and- macro-aggressions, service taxation, meritocratic pressure to prove value, hierarchical structures of governance, and long standing bureaucratic practices (Carlone & Johnson, 2007; Ebony, McGee, & Bentley, 2017; Estrada, Woodcock, Hernandez, & Schultz, 2011; Fries-Britt et al., 2011; Rios, Copobiano, & Godwin, 2017; Rodriguez, Campbell, & Poloni, 2015; Steele, 1997; Turner, Gonzalez, & Wood, 2008; Zambrana et al., 2017). This scale contextualized 'faculty change agents for diversity' within the breadth of this research to guide item construction within the realities of faculty lived experience.

Much of this literature reflects analysis from feminist theory and a critical perspective that uses lived experience to understand the relationships of history, cultural narratives, and stereotypes to established practices and systems perceived to have an effect on an individual's choices and actions (Crenshaw, 1991). By examining the intersections of race, gender and class across this workplace decision making, Acker (2006) proposed a relationship between and reproduction of organization practice and inequity, termed inequality regimes. Furthermore, these decisions are contextualized by the society's histories, politics and culture. Acker posited the resulting effect was a gendered, racialized, and hierarchically driven organizational practice. Looking specifically at faculty experience, Brown-Glaude (2009) described a four-year study of faculty seeking change within their institutions (public, private, research focused, land grant and with a broad range of students). Faculty voices across this broad range of institutions and from multiple disciplines revealed that barriers to equality both on racial and gender lines were embedded in the organizational structures and practices of the institutions. Change that disrupts power exposes institutional resistance (Agócs, 1997). The organization's resistance to change was countered by the faculty's invention, leadership, engagement, and commitment to work toward institutional transformation.

The critical frame of this literature provides a context for the overall scale as it hopes to capture the lived experience of faculty members who are change agents spotlighting diversity. The scale asks individuals to rate their belief that they can navigate hostile environments (resistance and inequality regimes) and persist through professional challenges to advocate for diversity, equity and inclusion (faculty voices revealing barriers). While seemingly countering perspectives, the scale bridges the agentic theory of self-efficacy with critical analysis to investigate faculty self-efficacy to be a change agent for diversity within their institution.

CLOSING

Data collection using the *Self-Efficacy as Faculty Change Agent for Diversity (SE-FCA-D)* scale closed November 25th, 2020. Over 2,000 faculty at 11 institutions of higher education with BUILD programming were invited to complete the HERI Faculty Survey (2019-2020 instrument), STEM Module, Mentoring Module, and SE-FCA-D Module as part of the *Enhance Diversity Study* (IRB #15-001914). Both BUILD affiliated and non-BUILD affiliated faculty, largely in biomedical and behavioral science fields, were invited to participate. The authors plan to pursue additional validation procedures (and make

findings accessible) to better understand the psychometric properties of the scale, once data becomes available.

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