1 Development of an Intentional BiFactor Engagement Measure

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Abstract

Employee engagement has, in recent years, enjoyed a surge in popularity as a positive employee outcome. Despite this burgeoning interest, disagreement still remains regarding its factor structure and nomological relationship with similar concepts, such as burnout.

One or two sentences providing a **basic introduction** to the field, comprehensible to a scientist in any discipline.

Two to three sentences of **more detailed background**, comprehensible to scientists in related disciplines.

One sentence clearly stating the **general problem** being addressed by this particular study.

One sentence summarizing the main result (with the words "**here we show**" or their equivalent).

Two or three sentences explaining what the **main result** reveals in direct comparison to what was thought to be the case previously, or how the main result adds to previous knowledge.

One or two sentences to put the results into a more **general context**.

Two or three sentences to provide a **broader perspective**, readily comprehensible to a scientist in any discipline.

Keywords: Engagement, engagement

Word count: X

₃₁   Development of an Intentional BiFactor Engagement Measure

₃₂   The roots of employee (aka work; e.g., W. Schaufeli & Bakker, 2010) engagement

₃₃ research likely started with theoretical expansions of forms of employee participation (see, for

₃₄ example, Ferris & Hellier, 1984) and job involvement (e.g., Elloy, Everett, & Flynn, 1991).

₃₅ This exploration extended into broader considerations of attitudes and emotions (Staw,

₃₆ Sutton, & Pelled, 1994) and were informed by further exploration of the dimensionality of

₃₇ constructs such as organizational commitment (Meyer & Allen, 1991). The 1990's saw

₃₈ focused development and refinement (for example, a dissertation; Leone (1995) or actual

₃₉ semantic reference; Kahn (1990)). Staw, Sutton, and Pelled (1994) investigated the

₄₀ relationships between *positive emotions* and favorable work outcomes, and although they do

₄₁ not use the word, "engagement," their distinction between felt and expressed emotion likely

₄₂ held influence upon the burgeoning interest in the engagement construct.

₄₃   Kahn (1990) described engaged employees as being physically involved, cognitively

₄₄ vigilant, and emotionally connected. Although occasionally referred to as residing on the

₄₅ opposing pole to *burnout* (Christina Maslach & Leiter, 2008), these two constructs are

₄₆ currently most commonly conceptualized as being distinct (Goering, Shimazu, Zhou, Wada,

₄₇ & Sakai, 2017; Kim, Shin, & Swanger, 2009; Wilmar B. Schaufeli, Taris, & Van Rhenen,

₄₈ 2008; Timms, Brough, & Graham, 2012), although certainly not universally (Cole, Walter,

₄₉ Bedeian, & O'Boyle, 2012; Taris, Ybema, & Beek, 2017). Comparing the two, Goering,

₅₀ Shimazu, Zhou, Wada, and Sakai (2017) concluded that they have a moderate (negative)

₅₁ association, but also distinct nomological networks. Wilmar B. Schaufeli, Taris, and Van

₅₂ Rhenen (2008) investigated both internal and external association indicators, concluding

₅₃ that engagement and burnout (as well as *workaholism*) should be considered three distinct

₅₄ constructs.

₅₅   Burnout can be defined as a psychological syndrome characterized by exhaustion (low

₅₆ energy), cynicism (low involvement), and inefficacy (low self-efficacy), which is experienced

57 in response to chronic job stressors (e.g., Leiter & Maslach, 2004; C. Maslach & Leiter, 1997).

58 Alternatively, engagement refers to an individual worker's involvement and satisfaction as

59 well as enthusiasm for work (Harter, Schmidt, & Hayes, 2002). W. B. Schaufeli and Bakker

60 (2003) further specify a "positive, fulfilling, work-related state of mind that is characterized

61 by vigor, dedication, and absorption" (p. 74). Via their conceptualization, vigor is described

62 as high levels of energy and mental resilience while working. Dedication refers to being

63 strongly involved in one's work and experiencing a sense of significance, enthusiasm,

64 inspiration, pride, and challenge. Absorption is characterized by being fully concentrated

65 and happily engrossed in one's work, whereby time passes quickly and one has difficulties

66 with detaching oneself from work (Wilmar B. Schaufeli, Salanova, González-Romá, & Bakker,

67 2002). This absorption element has been noted as being influenced in conceptual

68 specification by (Csikszentmihalyi, 1990)'s concept of "flow."

69 Regarding measurement, Gallup is widely acknowledged as an early pioneer in the

70 measurement of the construct (see, for example, Coffman & Harter, 1999). The Utrecht Work

71 Engagement Scale (UWES) is another self-report questionnaire developed by W. B. Schaufeli

72 and Bakker (2003) that directly assesses the vigor, dedication, and absorption elements.

73 we need to do some market research on the Q12: 1. what's the feedback report

74 look like? (google images show one overall "satsifaction" score and/or one overall

75 "engagement" score), 2. how much does it cost, 3. what are the 200 pulse items

76 Gallup refers to? (6/7/21)

77 Our conceptualization of work engagement is a mental state wherein employees...

78 • ...feel energized (**Vigor**)

79 • ...are enthusiastic about the content of their work and the things they do

80 (**Dedication**)

81 • ...are so immersed in their work activities that time seems compressed (**Absorption**)

₈₂   **Methods**

₈₃ **Participants**

₈₄   330 individuals provided ratings across 36 candidate items.

₈₅ **Material**

₈₆ **Procedure**

₈₇   Looking into the specification of polychoric covariances (Jöreskog, 1994). This seems to

₈₈ be not very commonly leveraged (only package that seems to estimate these is `semPlot`). We

₈₉ report how we determined our sample size, all data exclusions (if any), all manipulations,

₉₀ and all measures in the study. We took two different approaches to determining final scale

₉₁ definitions: 1) focus on corrected item-total correlations, and 2) focus on CFA modificiation

₉₂ indices.

₉₃   **CFA Modividation Indices.**   Looking at the substantive and attitudinal models

₉₄ independently, we requested modification indices from each, with the intent of retaining

₉₅ indicators whose shared residual covariances were implicated as being "freed." The path with

₉₆ the highest modification index across both CFA's was between item2 and item4, which are

₉₇ both indicators of "Absorption" and "Cognition." One of these items was therefore a

₉₈ candidate for deletion, and semantic preference was given to item4, "I find it difficult to

₉₉ mentally disconnect from work" over item2, "I have a hard time detaching mentally from my

₁₀₀ work." After item2 was excluded from both scale definitions (substantive and attitudinal),

₁₀₁ the CFAs were re-run and modification indices re-checked for bi-factor structure optimizing

₁₀₂ modifications.[1]

₁₀₃   We prioritized item deletions such that an item was implicated for deletion if: 1)

₁₀₄ modification index was high (relative to others) and 2) error residual was within same "cell."

―――――――
[1] Probably put a table in here highlighting certain modification indices (with a key to intended factor-item association).

¹⁰⁵ The choice of itme to delete was based on author preference for wording/semantics as well as
¹⁰⁶ construct element coverage (considering the possible consequences for construct deficiency).

¹⁰⁷ Actually it doesn't matter that much with only 1 item deletion -
¹⁰⁸ probably go ahead and do a few before recheck modification indices

¹⁰⁹ **Data analysis**

¹¹⁰ We used R [Version 4.0.5; R Core Team (2021)] and the R-packages *dplyr* [Version
¹¹¹ 1.0.6; Wickham, François, Henry, and Müller (2021)], *kableExtra* [Version 1.3.4; Zhu (2021)],
¹¹² *lavaan* [Version 0.6.8; Rosseel (2012)], *papaja* [Version 0.1.0.9997; Aust and Barth (2020)],
¹¹³ *sem* [Version 3.1.11; Fox, Nie, and Byrnes (2020); Epskamp (2019)], and *semPlot* [Version
¹¹⁴ 1.1.2; Epskamp (2019)] for all our analyses.

¹¹⁵ **Results**

¹¹⁶ CFA drafts below

¹¹⁷ **Discussion**

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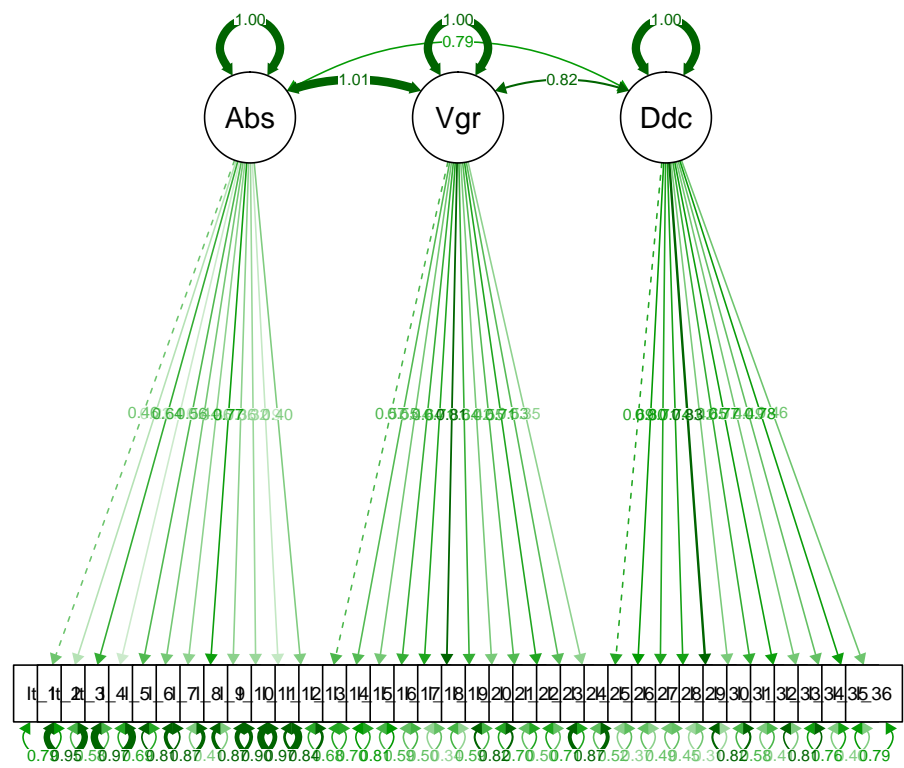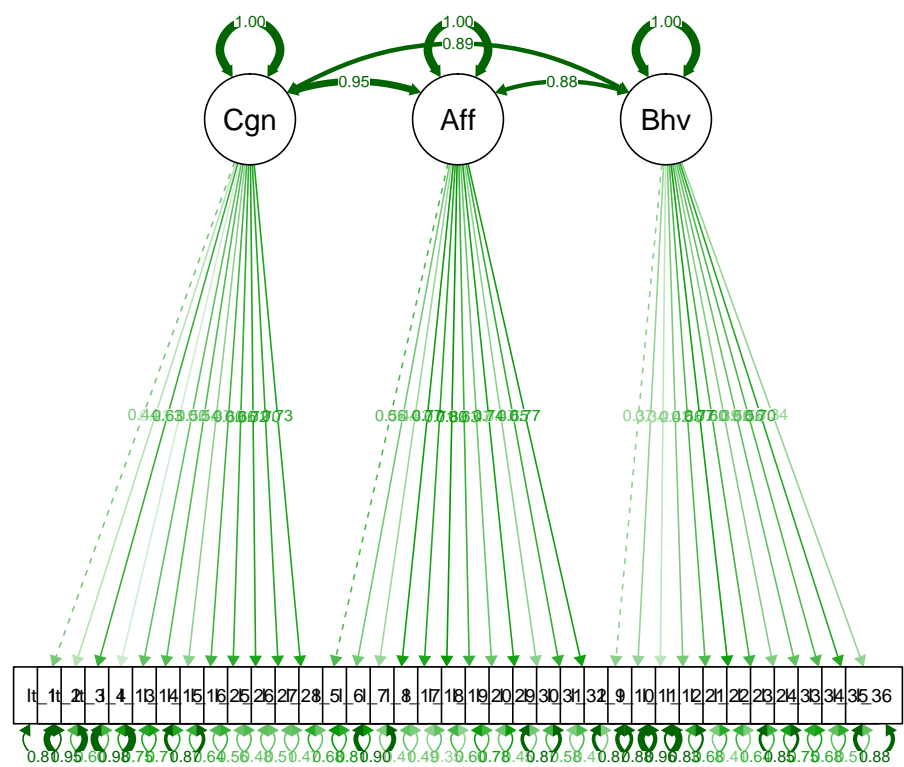
Figure 1. (#fig:CFA.sub)Substantive factor structure CFA

Figure 2. (#fig:CFA.att)Attitudinal factor structure CFA