SYNERGY AND CONFLICT IN VISIONS OF THE FUTURE: A NETWORK-BASED APPROACH TO FUTURE WORK SELVES

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This paper investigates how individuals envision their future and how the interconnections between the envisioned attributes of their future self shape career management behaviors. To date, research has demonstrated that individuals' future work selves (FWS), their mental representations of themselves in the future (Strauss, Griffin, & Parker, 2012), provide a motivational resource that facilitates behaviors such as career planning, networking, and job search (e.g., Guan et al., 2014; Strauss et al., 2012). Being able to clearly imagine oneself in the future is supposed to facilitate self-regulation (Hoyle & Sherrill, 2006), and to enable mental simulation of the future and the generation of plans (Taylor, Pham, Rivkin, & Armor, 1998).

However, not all individuals have such a clear idea of who they want to be in the future. We propose that FWS are composed of the attributes individuals imagine for their future self. These attributes may or may not align to form a coherent vision of the future. Individuals may, for example, imagine incompatible attributes and feel torn between them.

Research to date has not acknowledged that the different attributes individuals envision for their future self are interconnected – that is, that pursuing one self-attribute may help or hinder the pursuit of another. Overlooking the interconnectedness of FWS attributes is concerning as this interconnectedness likely influences how individuals navigate career decisions. Therefore, study of this phenomenon can help elucidate how and when individuals engage in more effective career management behaviors.

We extend the conceptualization of FWS to capture the level of interconnectedness between the attributes that make up FWS, taking into account enhancing and conflicting connections. To do so, we integrate research on self-concept representation with concepts based in network theory and conceptualize FWS as networks of envisioned self-attributes.

FUTURE WORK SELVES STRUCTURED AS NETWORKS

Research has long acknowledged that individuals' representations of who they are can be represented as intrapersonal networks (e.g., Linville, 1985; McConnell, 2011; Ramarajan, 2014). Building on this notion, we conceptualize FWS as networks of future-oriented self-attributes.

FWS reflect who individuals hope to become in the future, including a range of possible elements such as "the type of job the future self will have or the type of person the future self will be" (Strauss et al., 2012: 590). To propose a theoretical framework of the nodes of FWS networks, we draw on Schleicher and McConnell's (2005) research on self-attributes. Self-attributes reflect individuals' descriptions of themselves (Linville, 1985) and constitute the content of the self-concept (McConnell, 2011). Schleicher and McConnell draw on associative systems theory (Carlston, 1994) to arrive at an overarching framework of self-attribute categories (e.g., visual appearance; and traits and characteristics). We conceptualize the nodes of FWS networks, the envisioned attributes of the future self, as falling into these categories.

In contrast to current selves, contemplating one's FWS involves episodic prospection (Strauss et al., 2012), the construction of a mental representation of autobiographical future events (Szpunar, Spreng, & Schacter, 2014). We thus included experiencing events and the physical environment of the future self as further categories of attributes.

Having established a framework of the nodes of FWS networks, we propose that the ties that connect these nodes can be positive (enhancing), negative (conflicting), or absent. A positive tie represents a connection between two nodes that is facilitative, with the attainment of one self-attribute helping the attainment of the second self-attribute. Negative ties represent conflict between attributes, such that achieving one attribute impedes achieving the other. Finally, nodes in a FWS network can be unrelated to each other, which means they co-exist without impacting one another (Bataille & Vough, 2020), reflected in the absence of a tie.

The Effects of Network Interconnectedness

We propose that FWS networks are likely to vary in their level of interconnectedness. In network terms, they are likely to vary in density, defined as the number of ties in a network as a proportion of the maximum possible number of ties (Scott, 2013). As FWS networks have both positive ties (reflecting enhancement) and negative ties (reflecting conflict), we can distinguish between positive density (the number of positive ties as a proportion of the maximum possible number of ties), and negative density (the number of negative ties as a proportion of the maximum possible number of ties).

We argue that the positive density of FWS networks is likely to promote career adaptability. Career adaptability reflects individuals' self-regulation capacities that allow them "to cope with the predictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by changes in work and working conditions" (Savickas, 1997: 254). It is composed of concern, control, confidence, and curiosity. Individuals with FWS networks high in positive density have mutually enhancing connections between many of the attributes they envision. A high level of mutual enhancement amongst attributes is likely to be related to high levels of career adaptability because progress towards one attribute will spill over to progress towards other attributes, making it easier for individuals to prepare for the future (concern). It enables individuals to take responsibility for the future as they are not torn between

different conflicting attributes (control), and allows them to use their resources efficiently in working towards their desired future. Individuals with FWS networks high in density are also more likely to progress towards their FWS, which will in turn build their confidence in their ability to shape the future (confidence), and provide a secure basis for exploration (curiosity).

We further expect individuals with a FWS network high in positive density to be better able to engage in proactive career behavior because the mutual enhancement amongst the attributes within dense networks enables a more efficient use of resources. In addition, such networks are characterized by a large number of enhancing connections. This means that when one node is activated, activation will easily spread throughout the network (Kruglanski et al., 2002), and these activated attributes will impact behavior (Hannah, Woolfolk, & Lord, 2009).

Hypothesis 1: Positive density of FWS networks is positively related to a) career adaptability, and b) proactive career behavior.

In contrast, FWS networks high in negative density are likely to be associated with lower levels of career adaptability. A high level of conflict amongst the attributes contained within FWS makes it more difficult for individuals to prepare for the future (concern), as multiple attributes are in competition for a finite amount of attention. They will likely struggle to take responsibility for their future (control), and feel less confident about their ability to bring about their desired future. Finally, pursuing goals that are in conflict is associated with stress (Gray, Ozer, & Rosenthal, 2017), which can negatively affect individuals' curiosity (Reio & Callahan, 2004), making it less likely for them to explore different career options.

Negative density in FWS networks is also likely to undermine proactive career behavior. Incompatible goals activate the behavioral inhibition system which inhibits the behavior that would be generated by either goal, enhances avoidance tendencies by increasing fear and risk aversion, and increases irrelevant behavior (Gray & McNaughton, 2000). FWS networks high in negative density are thus less likely to motivate proactive career behavior.

Hypothesis 2: Negative density of FWS networks is negatively related to a) career adaptability, and b) proactive career behavior.

We propose that vitality, the feeling of being alert and energized, acts as a key mechanism through which the positive and negative density of FWS networks are likely to affect career adaptability and proactive career behavior. FWS networks high in positive density are likely to enable a more efficient use of resources in the pursuit of a desired future. This allows individuals to preserve their energy, resulting in higher levels of vitality (van Dierendonck, Rodríguez-Carvajal, Moreno-Jiménez, & Dijkstra, 2009).

FWS networks high in negative density on the other hand are likely to negatively impact vitality. Perceiving conflict between attributes is likely to make individuals feel pressed for time (Etkin, Evangelidis, & Aaker, 2015), and drain their energy levels.

Vitality is likely to have a positive effect on career adaptability because it provides individuals with the energy required to orient themselves towards the future, take responsibility for it, explore different options, and believe in their ability to shape their own future. It further provides the energy required for proactive behavior (Parker, Bindl, & Strauss, 2010).

Hypothesis 3: Vitality mediates the effect of positive density of FWS networks on a)

career adaptability, and b) proactive career behavior.

Hypothesis 4: Vitality mediates the effect of negative density of FWS networks on a) career adaptability, and b) proactive career behavior.

STUDY 1

The aim of Study 1 was to develop and validate a methodology to assess FWS networks. In Study 1a we generated a list of future-oriented self-attributes from which research participants can select the ones that apply to their FWS. To generate this list, a sample of 50 online panel participants were first asked to think about their FWS, and then to list up to ten descriptions of their FWS in each of the following categories: the visual appearance of the FWS; the social, organizational, professional, political, societal, or ethnic categories and groups the FWS belongs to; the traits, abilities, or personality attributes of the FWS; the emotions the FWS experiences; how the FWS would be seen or described by others; the relationship the FWS has with other people; the behaviors the FWS engages in, both alone and with others; which significant events have happened to the FWS; and the FWS's physical surroundings. Participants generated 5432 descriptions. In an iterative process, we coded these descriptions with the aim of capturing the most common attributes while maintaining the breadth of individuals' envisioned self-attributes. This resulted in a list of 206 attributes.

In Study 1b, we proceeded to investigate the relationship between positive and negative density with constructs FWS networks should conceptually relate to. We included FWS salience (Strauss et al., 2012), career identity (Carson & Bedeian, 1994), career aspiration (O'Brien, 1996), future orientation (Strathman, Gleicher, Boninger, & Edwards, 1994), vocational identity (Super, Savickas, & Super, 1996), and self-concept clarity (Campbell et al., 1996), as well as career adaptability and proactive career behaviors. A sample of 179 online panel participants was instructed to select up to 25 descriptions they considered most important to their FWS from the list of 206 possible FWS descriptions. To assess whether nodes were mutually enhancing, in conflict, or not related to one another participants rated each pair of descriptions on a 5-point scale ranging from -2 (very harmful) via 0 (no effect) to +2 (very helpful).

To compute positive density, we constructed a positive FWS network for each participant, by coding each tie that was reported as helpful (+1) or very helpful (+2) as 1 and all other ties as 0. We then computed the density of this network as the ratio of observed ties to the number of possible ties (Wasserman & Faust, 1994). We proceeded in the same way for the computation of negative density for ties reported as harmful (-1) or very harmful (-2).

The relationship between FWS salience and positive density was marginally significant while its relationship with negative density was not significant, suggesting that the characteristics of FWS networks are distinct from FWS salience. In addition, positive density of FWS networks was significantly related to career identity, but not to other variables, providing further support for the distinct nature of FWS network characteristics. Positive density in FWS networks was further related to career adaptability and proactive career behavior. In contrast, negative density was related only to career aspiration.

In Study 1c we examined how network characteristics relate to FWS narratives. Data were collected from 86 students at 2 leading international business schools in Europe. Following the instructions used by Strauss et al. (2012), participants were first asked to mentally travel into the future and envision their FWS. They were then asked to write a narrative describing their

FWS. Two trained coders independently rated the resulting 86 FWS narratives on a 5-point scale in terms of their elaboration, "the level of vividness or rich detail included in the narrated possible self" (King & Smith, 2004: 969). Interrater reliability was satisfactory (Krippendorff's α = .83). We thus averaged elaboration ratings across the two raters.

Elaboration of FWS narratives was significantly related to the number of nodes participants selected for their FWS network (r = .30, p <.01), but not to positive or negative density (r = .02, p =.77, and r = -.04, p =.71, respectively). This suggests participants with a larger FWS network also include a greater number of elements in their FWS narrative. Importantly, it provides support for our contention that structural characteristics of FWS networks capture a quality not reflected in how elaborate FWS narratives are.

STUDY 2

We next sought to establish that FWS network positive and negative density predict career adaptability (Sample 1) and proactive career behavior (Samples 1 and 2), over and above established predictors. Sample 1 consisted of 120 MBA students from a leading business school in the Netherlands. Controlling for age, FWS salience, career identity, future orientation, and the size of the FWS network, positive and negative density of FWS networks predicted a significant amount of variance in career adaptability (ΔR^2 = .09, p < .001). In particular, positive density was significantly related to career adaptability (β =.28, t = 3.37, p < .01), providing support for Hypothesis 1a. As negative density was not related to career adaptability (β = -.09, t = -1.06, p = .29), Hypothesis 2a was not supported.

Sample 2 consisted of 141 online panel participants; FWS networks and control variables were assessed at Time 1, and career adaptability and proactive career behavior 2 weeks later at Time 2. Controlling for age, FWS salience, career identity, career aspirations, and future orientation, as well as the size of the FWS network, network characteristics predicted a significant amount of variance in career adaptability (ΔR^2 = .07, p < .01) and proactive career behavior (ΔR^2 = .03, p < .05). Positive density was related to career adaptability (β =.26, t = 3.05, p < .01) and proactive career behavior (β =.17, t = 2.14, p < .05), providing further support for Hypothesis 1a and initial support for Hypothesis 1b. In contrast, negative density of FWS networks was not significantly related to either career adaptability (β =-.07, t = -.87, p = .38) or proactive career behavior (β = -.06, t = -0.75, p = .45), failing to support Hypotheses 2a and 2b.

STUDY 3

Five-hundred sixteen participants from 11 organizations in Belgium completed an initial survey, including the FWS assessment, at Time 1, and two weeks later a second survey which assessed career adaptability and proactive career behavior. Network characteristics predicted a significant amount of variance in vitality, career adaptability, and proactive career behavior, after controlling for established predictors (ΔR^2 = .01, p < .05; ΔR^2 = .01, p < .05; and ΔR^2 = .03, p < .01, respectively). Positive density was significantly related to career adaptability (β =.10, t = 2.18, p < .01) and proactive career behavior (β =.19, t = 4.60, p < .001), assessed 2 weeks later, providing further support for Hypotheses 1a and 1b.

To test the mediation hypotheses, we used the PROCESS macro (Hayes, 2018) using 10,000 bootstrap estimates. There was no support for an indirect effect of positive density on career adaptability via vitality as the 95% confidence interval included zero (.-.0042; .0835).

Hypothesis 3a was thus not supported. However, positive density had an indirect effect on proactive career behavior via vitality (.0109; .1333), supporting Hypothesis 3b. As negative density was not related to vitality, Hypothesis 4 was not supported.

INTERNAL META-ANALYSIS

We performed an internal mini meta-analysis based on the correlations across our studies, drawing on Goh, Hall, and Rosenthal (2016). Positive density was significantly related to career adaptability (*M r* = .20, *Z* = 6.13, *p* <0.001 (two tailed), 95% CI [.14, .26]). The relationship between negative density and career adaptability was small yet significant (*M r* = -.07, *Z* = -2.19, *p* <0.05 (two tailed), 95% CI [-.14, -.01]). Positive density was also significantly related to proactive career behavior (*M r* = .21, *Z* = 6.07, *p* <0.001 (two tailed), 95% CI [.14, .28]). However, the relationship between negative density and proactive career behavior was not significant (*M r* = -.06, *Z* = -1.83, *p* = 0.07 (two tailed), 95% CI [-.13, .01]).

GENERAL DISCUSSION

We introduced the interconnectedness between attributes of the future self as a previously overlooked quality of the way individuals think about their future by proposing a network-based approach to FWS. We developed a methodology to capture FWS networks and, across a series of studies, showed that positive and negative density of FWS networks are distinct from related concepts such as career aspirations and vocational identity, as well as from the elaboration of FWS narratives. Although our internal meta-analysis shows that negative density was negatively correlated with our outcomes, positive density in particular predicted career adaptability and proactive career behavior over and above recognized predictors. We further showed that greater coherence in FWS networks is associated with higher vitality, and that this is one mechanism through which positive density relates to proactive career behavior, providing support for the idea that a more efficient use of resources may be one of the benefits of dense networks.

Our network-based approach answers calls for quantitative approaches to identity-related concepts (Caza, Vough, & Puranik, 2018). Each FWS network is unique and generated by the research participant, yet network characteristics are comparable across individuals. Networks are also comparable over time, which will allow future research to investigate their dynamics.

We further contribute to the literatures on careers and on FWS. In both, attention has been focused on clarity and stability of a vision of the future. This overlooks the possibility that individuals may envision attributes for their future self that are incompatible, or that mutually facilitative connections between attributes enable the pursuit of a desired future.

More broadly, in studying structural characteristics of future visions, our work opens up new ways of understanding how individuals and collectives look at the future. In several strands of organizational research (e.g., motivation, leadership, strategy), future visions of individuals, teams, and organizations have been advanced as key levers for success. Our work informs these streams of research by suggesting that visions of the future are not monolithic entities but the relationships between their components can be synergetic or contradictory. Research on visions of the future may benefit from going beyond examining visions as coherent and clear narratives and start examining the structural characteristics of the constituting components of visions.

From a practical perspective, our findings have implications for career counselling, and for organizations and policy makers aiming to encourage individuals to take a proactive

approach to managing their own career. Advising individuals to develop a clear and stable vision of their future career may be of limited use, given the rate of technological and socio-demographic change. Our results highlight the value of encouraging individuals to reflect on how the different attributes they envision relate to each other, and to construct FWS networks characterized by synergy and mutual enhancement.

REFERENCES AVAILABLE FROM THE AUTHORS