MAPPING JVB: A 23-YEAR REVIEW

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Abstract

This article uses bibliometric analysis to provide an overarching review of the *Journal of Vocational Behavior* (JVB) over the last 23 years. To conduct this review, we systematically analyzed 1,490 JVB articles published from 1994-2016. We draw on this analysis to answer the questions: a) What key works were cited in articles published in JVB? and b) What key topics, articles, and trends appeared in JVB over the last 23 years? This review is accompanied by two analytic science maps: 1) a co-citation map that reveals 466 key works cited by JVB articles (<http://bit.ly/JVBFoundations2>), and 2) a topic map that reveals 353 JVB article topics, topic relations, degree of citation associated with article topics, and trending topics (<http://bit.ly/JVB_Topics1b>). These maps can be downloaded and interactively explored by readers to help guide their future research. In addition to the empirically grounded reviews of major topic areas in JVB, recommendations for future research are discussed.

Keywords:

Careers; Vocational psychology; Vocational behavior; Science mapping; Bibliometrics

**1. Introduction**

As noted by Sampson and colleagues, “Content analyses of journal articles provide an opportunity for a discipline to periodically evaluate the congruence of the professional literature with the discipline’s purpose, interests, and values” (2014, p. 291). Indeed, scholars have periodically conducted analytic reviews of the *Journal of Vocational Behavior* (JVB) – the leading journal in the careers domain – to take stock of developments in the literature (e.g. Buboltz, Ebberwein, Watkins, & Savickas, 1995; Fitzgerald & Rounds, 1989; Watkins, Vitanza, & Servaty, 1993). However, the most recent analytic review of JVB is over 20 years old (Buboltz et al., 1995), and rigorous methods for systematically reviewing scholarship were unavailable when these prior reviews were conducted. Thus, the key aims of this article are to provide a rigorous analytic review of the intellectual foundations and key contents of JVB over the last 23 years.

In particular, we first conduct a co-citation analysis to systematically identify and map key foundational works that JVB articles built on during this period. The co-citation map that visualizes this analysis can be downloaded by readers to identify foundational works that may be relevant for their own scholarship, and newer works that are becoming influential in the field.

Next, we: 1) systematically identify JVB article topics and map topic relations, then 2) review features of the three topic clusters identified – including topic themes, “hot topics”, “highly cited article topics”, and key JVB articles associated with each cluster. This review allows scholars to gain a systematic overview of key content in JVB from 1994-2016. After providing this empirically grounded review of JVB, areas for future research are discussed.

*1.1 Prior Reviews of JVB and the Added Value of Science Mapping*

In this paper, we take employ science mapping analysis. This analytic approach facilitates systematic, empirically grounded reviews of large scholarly literatures (Zupic & Čater, 2014). In particular, we employ the rigorous VOSviewer science mapping methodology – a unified framework of high validity bibliometric methods (van Eck & Waltman, 2014) – used in over 400 articles across the sciences to date (“VOSviewer - Publications,” 2017), including recent reviews of large management literatures (e.g., Carpini, Parker, & Griffin, 2017; Lee, Felps, & Baruch, 2014; Markoulli, Lee, Byington, & Felps, 2017; Parker, Morgeson, & Johns, 2017).

Four advantages of this approach over prior reviews of JVB stand out: broader scope, richer detail, less bias, and visuality.

First, science mapping facilitates reviews of broader scope. Traditional reviews are particularly limited when it comes to the number of articles they are able to analyze. Namely, traditional reviews: a) tend to be limited to covering a corpus of perhaps 100-200 articles, and b) tend to focus on only a single or small number of topics within those articles. For example, Fitzgerald and Rounds (1989) identified JVB’s topic contents from the headers in just three annual review articles to describe the contents of JVB. In contrast, the review presented here can draw synthetic conclusions about JVB from an analysis of hundreds of articles.

Reviewing a larger article sample allows scholars working across JVB’s various topic areas to see “which flowers are blooming where” – outside of their own particular topic area. It also enables scholars to see which ideas are more and less closely linked / theoretically integrated – which can prompt new research efforts to investigate empirical links between topics that, at present, are rarely studied together (Markoulli et al., 2017; Parker et al., 2017). Moreover, readers can download and interactively explore the topic map provided to see key information about their own topic area *relative* *to* others in the literature (e.g. the number of JVB articles on their topic compared to the number of JVB articles on other topics) to gain a sense of the relative degree emphasis on their topic in JVB over the past two decades.

Second, science mapping enables reviews with more richly detailed information about the literature analyzed. Since traditional reviews tend to offer solely textual description, they are typically unable to fully represent the topic contents in large literatures. Moreover, due to article page constraints and non-quantitative approach, traditional reviews tend to provide little or no detailed information about the majority of the topics in the articles they analyze (Porter, Kongthon, & Lu, 2002). This limitation has been noted by those who have attempted to review large portions of the vocational behavior literature previously. For example, Borgen remarks, “Thanks to the delete key on my computer, I will spare you three pages of neurotic self-talk about why it is impossible to review adequately two decades of literature” (1991, p. 263).

In contrast, science mapping analysis facilitates reviews that are accompanied by richly detailed, informative, analytic maps of the literature being reviewed. The VOSviewer method employed here allows us to accompany our textual review with downloadable, interactive maps that readers can use to explore thousands of objective features of the JVB articles analyzed in rich detail. For example, our topic map presents all 353 frequently occurring JVB article topics that were identified by our analysis. For each of those topics, interested readers can view a) the degree to which it is related to each other topic in JVB articles, b) the exact number of JVB articles on that topic, the c) trendingness (i.e. average article publication year) and article citations associated with each topic, and d) the larger topic cluster each topic empirically belongs to. This representation of the many hundreds of JVB article topics (and the detailed information about each one) compares favorably against the last major review of JVB, where Buboltz and colleagues (1995) were limited to representing the topic contents of JVB using only16 impressionistically-derived, summary categories. Thus, while this review is also somewhat limited as to how much of the literature we can discuss in textual form, readers can examine the science map visualizations that accompany this article offer readers a “fuller representation” of the JVB article analysis results to compliment the textual review presented. Thus, readers of this article are able to view information about any of the 353 JVB article topics that may be of interest to that particular reader in the map, even if that particular topic that did not meet the criteria for a textual discussion in the main body of the review (criteria for textual discussion discussed below).

Third, science mapping analysis enables empirically grounded reviews, reducing the potential for a biased representation of a literature. Traditional reviews have been critiqued for relying solely on authors’ impressionistic judgments (rather than a systematic method of analysis) to describe a literature. Impressionistic reviews may provide an idiosyncratic view of the field, filtered through the lens of the author. This can potentially introduce author bias, and misrepresent the contents of a literature (Tranfield, Denyer, & Smart, 2003). Even attempts to be systematic, such as Buboltz and colleagues (1995) analysis of JVB, which involved assigning articles to 16 categories, may not accurately reflect the contents of the journal – as those categories were based on an earlier, impressionistically-derived categorization scheme developed by Fitzgerald and Rounds (1989). And indeed, the lack of a systematic methodology for rigorously analyzing and fully representing the contents of a literature can result in misrepresentations. For example, recent use of science mapping analysis to analyze the Human Resource Management field revealed that major research areas in this literature had been ignored or misrepresented in prior, impressionistic reviews (Markoulli et al., 2017).

In contrast, this review aims to be empirically grounded, and is based on a systematic analysis of JVB (i.e. using bibliometric analysis). The analytic approach employed allows for two key distinctions from traditional reviews: a) the analysis results (which are visualized in the analytic maps) can help keep review authors’ description of the literature “honest” and less colored by personal biases in literature interpretation, and b) drawing on the analysis of articles, *systematic* criteria can be applied to select which contents in a literature to highlight in the article text and tables (e.g. Table 1, topics with the largest number of JVB articles, topics whose articles have the highest citation rates, etc.), rather than on the idiosyncratic selection of topics based on implicit preferences of the author.

Fourth, science maps have the advantage of being visual. Visual information is easier to remember and process (Brady, Konkle, Alvarez, & Oliva, 2008; Cattaneo, Rosen, Vecchi, & Pelz, 2008). As such, by communicating visually, information about the content and structure of JVB scholarship can be relayed to viewers in a way that is more likely to be accurately understood and accurately recalled by viewers than text descriptions.

*1.2 Contribution*

The four advantages of using science mapping analysis discussed above suggest that it is a promising approach for analyzing JVB’s contents in a way that has analytical rigor, and is informative for readers. Bearing in mind the standing of JVB as the leading journal in career studies, such an analysis of JVB is likely to be of wide interest for the research community with an interest in the study of careers and vocational behaviour. The aims of this analysis and review are to answer the following questions: a) What key works were cited in articles published in JVB? and b) What key topics, articles, and trends appeared in JVB over the last 23 years?

**2. Study 1: Mapping the Intellectual Foundations of JVB**

*2.1 Method*

*2.1.1 Sample*

We first identified JVB article records in the Web of Science (WoS) database. The sample begins when JVB article records began being systematically indexed in WOS, and covers the period since the last major review of the journal (i.e. Buboltz et al., 1995) (n = 1,490 article records, 1994-2016).

*2.1.2 Procedure*

To assess the intellectual foundations of JVB over the last 23 years, the 1,490 JVB article records from the Web of Science were uploaded into VOSviewer. Next, a co-citation analysis of the works referenced in those 1,490 JVB articles was conducted using VOSviewer.

To help ensure reliable assessment of co-citation relations, a work needed to be cited by at least 15 JVB articles to be included in our analysis of foundational works. This threshold resulted in the identification of 466 key works referenced in JVB articles. Next, we ran a VOSviewer co-citation analysis to systematically identify a) the number of times each of the 466 key works was cited, and b) the degree to which these key works co-occurred in JVB article reference lists. Specifically, VOSviewer was used to calculate the “association strength” for each pair of key works based on the frequency with which two documents are cited together in the reference lists of JVB articles (van Eck & Waltman, 2009). Next, the relations between key works were spatially mapped by the VOSviewer algorithm such that the distance between key works in the map indicates their degree of co-citation (Waltman, van Eck, & Noyons, 2010). To help ensure a robust mapping solution – i.e., where terms were placed on the map – 100 random starts and 10 random seeds were used. To ensure a robust clustering solution – i.e., the analysis of which cluster each term is empirically associated with – the default VOSviewer resolution parameter of 1 was used, with a minimum possible cluster size of 1, and 100 random starts and 10 random seeds.

*2.2 Results*

The analysis identified five empirically (and topically) distinct clusters of works that frequently appear together in JVB article reference lists (clusters indicated by map color and labels in Figure 1). To explore each of these 466 works in detail, readers can download the interactive version of the co-citation map by clicking here: <http://bit.ly/JVBFoundations2>. [[1]](#footnote-1) The downloadable co-citation map reveals: 1) the first author and identifying information about each of these 466 foundational works, 2) the number of times JVB articles cited each work, 3) the degree to which particular works tended to be cited in the same JVB articles (indicated by spatial distance between works in the map), and 4) abstracts of the journal articles in the map. The map also contains embedded hyperlinks for the articles whose records have a DOI hyperlink, such that clicking on a hyperlinked article in the map will open the viewer’s browser to that article’s webpage. Thus, the co-citation map can help facilitate scholars’ self-directed learning about key careers scholarship.

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Insert Figure 1 and Table 1 about here

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In the Network Visualization of this map (see Figure 1), each work appears as a node in the map, and the color of each node indicates the cluster that each work “belongs” to. In the Overlay Visualization tab, the color of each node indicates the publication year of that work on a continuum from purple (i.e. older works) to yellow (i.e. recently published works). Thus, the yellow-hued nodes indicate newer research that is attracting attention from JVB articles.

The five foundational clusters identified by the co-citation analysis include scholarship on: *Employee Attitudes & Motivation* (cluster 1, red in map), *Occupation Selection* (cluster 2, green), *Career Orientations* (cluster 3, blue), *Work-Family* (cluster 4, gray), and *Mentoring* (cluster 5, magenta). Table 1 provides a summary overview of: 1) the works in each cluster that are most highly cited by JVB articles, and 2) “new classics” – recently published works (i.e. 2006+) that are attracting the highest rate of citations per year from JVB articles. For example, in the *Career Orientations* cluster (blue), recent work on career adaptability is already being cited at a particularly high rate (Savickas & Porfeli, 2012; Zacher, 2014). Notably, as can be seen in the Overlay Visualization tab of the downloaded map, the works in the *Career Orientations* cluster were published much more recently (i.e. average publication year 2001) than those in the other clusters (i.e. *Employee Attitudes & Motivation*: 1990; *Occupation Selection*: 1991; *Work-Family*: 1993, and *Mentoring*: 1992). This suggests that the *Career Orientations* cluster has recently emerged as a foundational literature for JVB articles. In the table above, prominent topic themes in each foundational cluster are noted.

**3. Study 2: JVB Topic Mapping**

*3.1. Method*

This study provides an empirically grounded review of JVB’s topics, topic clusters, key articles, topics that tend to be highly cited, and topic trends.

*3.1.1. Sample*

We performed topic mapping on the 1,490 JVB article records published between 1994 and 2016. As noted previously, the sample began when JVB article records began being systematically indexed in WOS, and covers the period since the last major review of the journal (i.e. Buboltz et al., 1995).

*3.1.2. Procedure*

To identify key topics in the 1,490 JVB articles, we uploaded the 1,490 JVB article records from the Web of Science into VOSviewer. We then used VOSviewer’s integrated article topic identification function, which applies natural language processing to the article title and abstract records, to systematically identify the primary topic contents of articles. In particular, this method systematically identifies nouns and noun phrases – i.e. multi-noun phrases (e.g. “family conflict”) and adjective + noun phrases (e.g. “boundaryless career”). These types of words in titles and abstracts tend to represent the primary topics of academic articles (Justeson & Katz, 1995). As is the standard in VOSviewer topic analysis, to ensure reliable assessment of topic relations a topic needed to occur in at least 10 articles to be included in our topic analysis (van Eck & Waltman, 2010). To help ensure reliable article counts, plural and singularized spellings of the same term (e.g., career and careers) were merged, and abbreviations were converted and merged with the full spelling of a term (e.g. caas 🡪 career adapt abilities scale). As is conventional in term mapping with VOSviewer (Markoulli et al., 2017; van Eck & Waltman, 2014), the list of systematically identified topics was then independently reviewed by two authors who nominated for exclusion highly generic noun phrases that do not constitute specific research topics (e.g. “recent research”, “study”). Agreement between coders as to which terms to exclude was high (Cohen’s Kappa = .87), with discrepancies resolved through review of relevant articles and discussion. From this process, 353 article topics were identified.

VOSviewer also automatically counts the number of articles on each topic, the average number of citations articles on each topic receive in JVB, and topic trendingness (i.e. the average publication year of JVB articles on each topic). Meanwhile, Figure 2 summarizes the cluster each topic belongs to, and frequency of each topic, and the relative placement of different major, terms.

Once article topics were systematically identified, the association strength (i.e. the degree to which topics co-occur in article titles/abstracts) was measured for each pair of terms (van Eck & Waltman, 2009). Next, these topic relations were spatially mapped in VOSviewer such that the distance between topics in the map indicates their degree of co-occurrence (Waltman et al., 2010). To help achieve a robust mapping solution, 100 random starts and 10 random seeds were used. VOSviewer cluster analysis was then applied to systematically identify clusters of frequently co-occurring article topics. To help achieve a robust clustering solution, 100 random starts and 10 random seeds were used. The clustering resolution parameter was .80 with a minimum possible cluster size of 1. In choosing which clustering resolution to use, we were faced with the classic challenge associated with data reduction techniques (e.g., factor analysis); namely, to find an appropriate balance between the nuance associated with a larger number of clusters and the interpretability associated with a smaller number of clusters. Operationally, we sought a resolution parameter that produced the largest number of clusters within the constraints of 1) being visually distinguishable – i.e., not overlapping so much that the viewer cannot identify distinct areas, 2) including enough terms to be able to identify a meaningful number of associated articles. A clustering resolution of .80 produced a map that neatly balances categorical nuance with interpretability.

To identify topic themes for each cluster, we first identified of all JVB articles that belong to each cluster. An article was deemed as belonging to a topic cluster if a) the majority of the topics mentioned in an article’s title/abstract matched to a single cluster, and b) there were at least 2 identified topics (approximately 99% of the sample contained 2 terms). This is the same methodology as used in past reviews that employed VOSviewer, and is used to ensure reliable assignment of articles to topic clusters(e.g., Lee et al., 2014; Markoulli et al., 2017).

Second, the abstracts and titles of the articles that belong to each cluster were coded to identify themes. To accomplish this, the second author used a multi-stage process of sequentially applying open coding, axial coding, and then selective coding (Strauss & Corbin, 1990). In stage 1, open coding was conducted, which involved looking at each abstract associated with a cluster, and identify the key concepts, methods, and contexts mentioned. Examples of these open codes include “boundaryless careers”, “Personal Globe Inventory”, and “Germany”. In stage 2, axial coding was conducted, which involved examining whether lower-level categories could be grouped into higher-level categories based up a shared “family resemblance” of underlying features (Bowker & Star, 2000). Examples of higher-order codes include “worker personality”, “Holland-related”, and “career adaptability”. In stage 3, selective coding was conducted, which involved 1) culling from further consideration higher-order themes that were mentioned comparatively infrequently, 2) going beyond the abstracts to read the full text of key articles (defined in terms of highly cited per year) associated with frequently occurring higher-order themes, and 3) using snowball sampling to selectively read other work cited in those key articles. The second author then drafted the cluster reviews in line with a) the higher-order themes identified, and b) the articles read in full.

*3.2. Results*

This analysis provides an empirically grounded taxonomy of major content areas in JVB based on the degree to which terms tend to co-occur. Table 2 and Figure 2 provide a summary of results. For each topic cluster, Table 2 lists topics that have the largest number of JVB articles, the most highly cited article topics, and trending topics. Meanwhile, Figure 2 summarizes the cluster each topic belongs to, and frequency of each topic, and the relative placement of different major, terms.

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Insert Figure 2 and Table 2 about here

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While Table 2 and Figure 2 provide a high-level overview, detailed results can be found in an interactive topic map that readers can download by clicking this link: <http://bit.ly/JVB_Topics1b> . [[2]](#footnote-2)

 In the interactive topic map, readers can examine: 1) the exact number of JVB articles on each topic by hovering over a topic in the map, 2) the cluster each topic belongs to (indicated by topic node color in the “Network Visualization” tab of the map, see also Figure 2), 3) the “trendingness” of each topic (i.e. average publication year of JVB articles on each topic) by clicking the “Overlay Visualization” tab (above the map image) and selecting “avg. pub. yr.” from the “Scores:” drop down menu in the panel to the right of the map image, and 4) “topic impact” – i.e. the comparative degree of citations associated with JVB articles on each topic correcting for publication year – by selecting “avg. norm. cit.” from the “Scores:” menu in the Overlay tab. Specific topics can be found using the search bar in the “Items” tab on the left side of the map.

*3.2.1. JVB’s overall topic structure*

Our cluster analysis of topic co-occurrence indicates that two categories represent large, empirically distinguishable areas of scholarship in JVB from 1994-2016. Given our review of the topic contents of these two clusters as they stand from 1994-2016, we refer to these two areas as: *Worker Well-Being* (cluster 1, red in Figure 2) and *Career Choices* (cluster 2, green). We justify these labels below.

However, our analysis also reveals the emergence of a third, equally distinctmajor content area in JVB in recent years, which we refer to as *Scale Development* (yellow, cluster 3). The analysis of topic relations indicates that the topics in the Scale Development cluster are currently strongly disconnected from the rest of the topic literatures in JVB. So much so that this cluster emerges as an empirically distinct topic cluster virtually regardless of the methodological choices applied. This is because the terms in this cluster almost always co-occur with each other in JVB articles, and very rarely co-occur with the topics in the other clusters. The “disconnectedness” of the Scale Development cluster from the rest of JVB’s contents is also indicated in the topic map by its spatial distance from the other clusters (lower right hand side).

As revealed in the Overlay Visualization tab of the downloaded map, our analysis indicates that articles on topics in the *Scale Development* cluster appeared in JVB more recently (i.e. average publication year of articles on the topics in this cluster = 2010) than articles on topics in the *Worker Well-Being* cluster (2008) or the *Vocational Choice* cluster (2007). Moreover, there appear to be differences in the citation rates of JVB articles on topics in these three clusters. Namely, JVB articles on topics in the *Career Choices* cluster tend to have been cited less (i.e. average article citation rate per year = 0.84/yr) than articles on topics in the *Scale Development* or the *Worker Well-Being* clusters (1.28/yr and 1.3/yr, respectively). In combination, these measures indicate that *Scale Development* has emerged as a new and highly cited topic literature in JVB in recent years. In addition, these results indicate that *Career Choices* scholarship in JVB attracted comparatively fewer citations relative to the journal’s other content areas during this period.

Table 1 provides a summary overview of key content associated with each of the three major JVB topic areas, including: a) *key articles* (i.e. the JVB articles associated with each topic cluster that have the highest per year citation rates), b) *key topics* (i.e. topics associated with the largest number of JVB articles), c) ‘*high impact’ topics* (i.e. topics whose articles have the highest average citation rate, correcting for publication year), and d) *trending topics* (i.e. topics with the most recent average article publication year) for each cluster.

 *3.2.1.1. Comparison of results to prior reviews of JVB topic areas.*In this section, we note features of the overall intellectual structure of JVB as revealed by our topic analysis, and discuss how it updates prior descriptions. The two primary fields contributing to JVB have been variously referred to as “the counseling psychology and organizational behavior perspectives” (Hackett, Lent, & Greenhaus, 1991, p. 4), and “counseling psychology” and “industrial-organizational psychology” (Tinsley & Heesacker, 1984, p. 139). Our topic mapping analysis partially supports this distinction. The large red cluster – which we label as “Worker Well-Being” – includes topics that have previously been associated with organizational behavior / industrial-organizational psychology (Hackett et al., 1991). Meanwhile, the large green cluster – which we label as Career Choices – includes topics that have previously been associated with counseling psychology (Borgen, 1991; Hackett et al., 1991).

The Worker Well-Being label reflects the topics that appear in this topic cluster Namely, both the topics and the JVB articles associated with this cluster reveal indicate that the main focus of this cluster is factors associated with improved worker well-being – including job attitudes and objective indicators of career success. Although there are a few terms related to organizationally desirable outcomes in the Worker Well-Being cluster – e.g., job performance, turnover – these concepts are usually given auxiliary importance in the articles associated with this cluster. This helps distinguish JVB from other OB journals; in JVB improved worker Well-Being is a legitimate end in itself, while most OB journals seem to focus on predicting managerially prioritized outcomes such as job performance and turnover.

For the second empirically derived cluster, a careful review of the full range of terms that appear in this cluster suggests that the cluster label ‘Career Choices’ accurately reflects its contents. Importantly, the career-related choices referred to by the terms in this cluster are diverse, and include: a) choices of what to study at school, b) initial choices of occupation, c) the choice to be self-employed or part of an entrepreneurial start-up, d) the choice to change occupations, e) the choice to search for a new job as well as how intensely to search, f) the choice of whether to be employed at all, g) choices around number of hours to work, h) choices around whether to seek a mentor and the kind of person one approaches, i) the choice to utilize family friendly benefits, and j) choices about attempting to recraft one’s job. In thinking about these choices, people vary in their “career decidedness”, with many experiencing “career indecision” and “career decision making difficulty” (Osipow, 1999). In sum, the Career Choices cluster corresponds to a diverse range of decisions associated with careers.

*3.2.2. Review of Journal of Vocational Behavior Topics*

We now turn to providing systematic, empirically grounded reviews of each of the three major content areas of JVB identified in this analysis. Below, for each of the three major content areas, we systematically discuss major topic themes and JVB articles associated with those themes.

*3.2.2.1. Worker Well-Being cluster.*With 176 topics, the *Worker Well-Being* cluster (red in Figure 2) is the largest cluster in the map. Terms in the *Worker Well-Being* cluster that conceptually overlap with subjective elements of worker well-being include: (job) satisfaction, (work) attitude, (work) engagement, stress, strain, burnout, depression, heath, life satisfaction, and subjective career success. Terms in the *Worker Well-Being* cluster that conceptually overlap with objective elements of worker well-being include: promotion, salary, compensation, and objective career success.

 The methodological terms associated with this cluster are consistent with the aim of understanding factors associated with improved worker well-being. Namely, major *research design* terms in this cluster include: longitudinal design/study/data, survey, self-report, and questionnaire. *Analytic methods* terms included in this cluster include: meta analysis, regression analysis, structural equation modeling, cluster analysis, and relative importance [analysis].

 The JVB articles associated with this cluster reveal a wide variety of potential drivers of worker well-being. Using a convention from social psychology (Fleeson & Noftle, 2008), we organize our review of these potential drivers into person-factors and situation-factors.

 *3.2.2.1.1. Person-factors*. A first and particularly prominent person-factor considered is worker personality. Some findings from JVB articles in this space include, 1) people with negative affective tendencies (e.g., who are neurotic, have trait negative affectivity, or have low core self-evaluations) tend to feel worse while performing their jobs, get promoted less, have lower salaries, and have more work-family conflict (Bruck & Allen, 2003; de Haro, Castejón, & Gilar, 2013; Ng & Feldman, 2014; Wu, Foo, & Turban, 2008); 2) extraverted employees are generally paid more, promoted more frequently, and have more career satisfaction (Seibert & Kraimer, 2001); 3) open people are paid less (Seibert & Kraimer, 2001); 4) agreeable people are more satisfied with their careers; 5) conscientiousness is not linked to objective career success (Seibert & Kraimer, 2001; Wu et al., 2008), and 6) people with proactive personalities have greater objective and subjective success (Fuller & Marler, 2009).

Beyond personality, a great body of research in JVB reveals that many demographic factors are only weakly related to subjective career success. For example, gender, ethnicity, socioeconomic origins, marriage, and children all appear to be basically unrelated to subjective career success (Ng & Feldman, 2014). This may be because those from historically disadvantaged groups (e.g., women and ethnic minorities) adjust their expectations downwards or are comparing themselves to similar others from the same disadvantaged groups. Another finding revealed in JVB articles is that there is little reason to believe that older workers will perform worse, be less satisfied at work, or even be less healthy (Ng & Feldman, 2013). Finally, JVB articles have highlighted the prevalence of discrimination and diminished worker well-being associated with being overweight (Rudolph, Wells, Weller, & Baltes, 2009). While discrimination against people based on age, gender, and ethnicity have all become major taboos in most developed countries, weight-based discrimination still appears to be fairly blatant (Roehling, Roehling, & Pichler, 2007).

A final important person-factor associated with this cluster is career orientations, especially work focusing on protean career orientations and boundaryless career orientations. According to Gubler, Arnold, and Coombs (2014), the protean career orientation has four main components: 1) being clear on one’s needs, motivation, abilities, values and interests, 2) having personal values that are both the guidance and the measure of success in one’s career, 3) being both competent at and motivated to adapt to a changing environment, and 4) having a feeling of independence and of being in charge of one’s career. Although operalizations vary, JVB articles generally conclude that a protean career orientation leads to improved happiness at work, career satisfaction, and objective career success (e.g., De Vos & Soens, 2008; Herrmann, Hirschi, & Baruch, 2015). Other work focuses on boundaryless career orientations, which has two components – 1) a desire to explore new roles/tasks (called psychological mobility or boundaryless mindset), and 2) a desire to explore new opportunities across organizations (called physical mobility preference). Although operalizations vary, JVB articles generally conclude that psychological mobility improves career outcomes, while a strong preference for physical mobility leads to *less* objective and subjective career success (e.g., Verbruggen, 2012). These contrasting findings between protean career orientations and boundaryless career orientations suggest that there are more and less functional ways for workers to confront rapidly changing economies and decreased job security (Rodrigues, Guest, Oliveira, & Alfes, 2015).

 *3.2.2.1.2. Situation factors*. A first situational factor is the support one receives from mentors and supervisors. A core finding of a number of JVB articles is that people are much happier at work and have more success if they have supportive supervisors and mentors (Kammeyer-Mueller & Judge, 2008; Ng & Feldman, 2014). The magnitudes of these effects are remarkable. For example, meta-analytic evidence suggests a corrected correlation of .58 between supervisor support and subjective career success (Ng & Feldman, 2014). Other situational factors associated with subjective career success include job control, job challenge, job importance, skill utilization, role ambiguity, procedural fairness, and job security (Ng & Feldman, 2014).

An increasingly popular approach to understanding the situational drivers of worker well-being is the job demands-resources theory. This theory organizes situational work features into job demands (e.g., work load, emotional demands, physical effort, and interpersonal conflict) and job resources (e.g., job control, colleague support, supervisory coaching, learning opportunities, and task clarity). The basic theory is straightforward: people feel stressed at work when perceived job demands are high and/or perceived job resources are low. Around 30 JVB articles associated with this cluster are related to the job demands-resources theory (e.g., Brauchli, Schaufeli, Jenny, Füllemann, & Bauer, 2013; Hu, Schaufeli, & Taris, 2011), with the basic theory receiving sustained empirical support. Although the basic theory is simple, complexity arises when considering the role of personal and contextual moderators (e.g., Loi, Liu, Lam, & Xu, 2016), as well as how elements of the model vary over time (e.g., Brauchli et al., 2013). In addition, a substantial body of work has considered how being overwhelmed at work spills over into family life (Grotto & Lyness, 2010). Moreover, if one’s family life is not conducive to regaining energy (the so called Effort-Recovery Model), then worker well-being decreases (Demerouti, Bakker, & Bulters, 2004).

A final approach to understanding the role of situational factors in worker well-being derives from self-determination theory. The theory in a nutshell is that 1) people will enjoy their work more when they feel intrinsically motivated to engage in it, and that 2) work will be more intrinsically motivating when it is designed to satisfy three basic human needs – i.e., the need to feel in control and have options (autonomy need), the need to feel adequately challenged (competence need), and the need to experience positive relations with others (relatedness need) (Howard, Gagné, Morin, & Van den Broeck, 2016; Moran, Diefendorff, Kim, & Liu, 2012).

*3.2.2.1.3. Trending topics*. Top trending topics in this cluster (i.e. topics whose articles have the most recent average article publication year; see Table 2) include person-factors, situation-factors, and outcome variables. Trending person-factor topics include proactive personality, boundaryless career [orientation], and protean career [orientation]. These trending terms all emphasize the role of agentic self-management of one’s career, which is often argued to be increasingly important in dynamic economies (Rodrigues et al., 2015). Trending theories related to situational factors include self-determination theory and job demand-resources theory. Both of these synthetic theories consider how psychological processes mediate between situational characteristics and worker well-being. Finally, certain outcome variables are gaining in popularity, including work engagement, objective and subjective career success, and life satisfaction. These outcome variables are supplanting traditional interest in stress and job satisfaction.

*3.2.2.2. Career Choices cluster.* Career Choices (green in Figure 2) is the second largest cluster, with 139 topics. The JVB articles associated with the topics in this cluster are focused on understanding the antecedents and consequences of career choices.

*3.2.2.2.1. Antecedents of career choices*. JVB articles associated with this cluster have explored a wide variety of antecedent factors that influence an individual’s career choices. These antecedents of career choices can be grouped into five main themes: career cognitions, identity, career development capabilities, gender, and career stage.

First, perhaps the most direct antecedent of career choices and behaviors are career cognitions. A sophisticated account of career cognitions can be found in Social-Cognitive Career Theory, which finds that people choose careers that they think a) they would be good at (self-efficacy), b) will lead to desirable outcomes (outcome expectations), c) will be enjoyable (interests), and d) can be realistically pursued (supports and barriers) (Lent & Brown, 2006; Lent, Brown, & Hackett, 1994; Lent, Lopez, Lopez, & Sheu, 2008). These cognitions combine to determine specific career goals, intentions, aspirations, goal persistence, perceptions of employability, and performance attainment. Career cognitions are powerfully influenced by social learning, whereby people compare themselves to relevant others as referents (Grote & Hall, 2013).

Second, a number of recent works have considered the role that identity plays in career choice. For example, a relatively recent addition to the career choice literature is work on callings (for a good review, see Duffy & Dik, 2013). One definition of a calling is work that a person perceives as their purpose in life (Hall & Chandler, 2005). Another definition is an occupational roles that one feels to be unusually a) capable of performing, b) meaningful, and c) prosocial (Duffy & Dik, 2013). While these two definitions overlap, they are not identical. For example, does a person have a calling if their job is not experienced as particularly meaningful but they still feel it is their purpose in life? Some scholars would argue yes (e.g., Hirschi, 2012; Ugwu & Onyishi, 2018), while others would argue no (e.g., Dobrow & Tosti‐Kharas, 2011; Duffy & Dik, 2013), and there is not yet widespread consensus about usage. Regardless of the exact definition, all agree that people are motivated to find and choose a calling because it gives a sense of special purpose, not because it is expected to bring social status or hedonic benefits (Hall & Chandler, 2005). As such, this work on callings underscores that career choices are often motivated by the desire to be a good person (Duffy & Dik, 2013). Another identity-based approach to career behavior is work on career construction theory, which emphasizes the importance that narrative and identity coherence play in shaping career behaviors (Del Corso & Rehfuss, 2011; Savickas et al., 2009). Psychometric operationalizations of some components of career construction theory have been developed, and are found in the Scale Development cluster (discussed below).

Third, a moderate amount of JVB research has attempted to measure how people vary in their career development capabilities (e.g., Stringer, Kerpelman, & Skorikov, 2011). Key career development capabilities include: a) being willing and able to engage in careful career planning, b) continual exploration of career opportunities, c) good general decision making skills, d) knowledge of a variety of occupations, e) knowledge of which educational experiences enable which occupational paths, and f) detailed knowledge of one’s current occupational path.

Fourth, a substantial number of JVB articles associated with this cluster consider the role that gender plays in career choices. The research on gender and careers suggests the following: 1) the basic psychological processes involved in making career decisions are basically the same for men and women (e.g., Lent et al., 2016), 2) women with children have lower career aspirations than other groups and work fewer hours, especially women who strongly identify as a mother (e.g., Greenhaus, Collins, Singh, & Parasuraman, 1997; Greenhaus, Peng, & Allen, 2012), 3) each gender is attracted to jobs stereotypically associated with their own gender (Straits, 1998), 4) women are discriminated against in “male-type” jobs, while men are discriminated against in “female-type” jobs (Davison & Burke, 2000), and 5) men and women face different kinds of career barriers and have access to different kinds of career supports (Melamed, 1995).

Fifth, the career choices that young people make – e.g., which major and specific occupation to pursue (Mortimer, Zimmer-Gembeck, Holmes, & Shanahan, 2002) – may differ from career choices made by adults – e.g., whether to change careers (Smart & Peterson, 1997) – which may differ from the career choices made by seniors – e.g., when to retire (Hesketh, Griffin, & Loh, 2011). As such, much work in JVB has constrained itself to applying to a particular age range – i.e., either young people *or* adults *or* older adults. Of these three groups, most of the JVB articles associated with the career choice cluster focus on young people who are in high school or college. This makes sense, given that it is during these formative years that young people decide “what they want to be when they grow up” and when they experiment most with a variety of possible selves (Taber & Blankemeyer, 2015). This is also the time when professional career counselors are most readily available to help young people make career choices (Di Fabio & Bernaud, 2008).

There is also a small literature in JVB on late career workers (currently, the “baby boomer” generation) (Greller & Stroh, 1995). Of particular importance are decisions about when to retire and what to do after retirement. These decisions are becoming more complicated due to a) increased longevity, b) a shift to knowledge work, c) increasing market dynamism, d) changing public policy, and e) the rise of early retirement programs (Baruch, Sayce, & Gregoriou, 2014).

*3.2.2.2.2. Consequences of career choices.* Although the majority of JVB articles focus on the antecedents of career choices, some JVB articles link career choices to career success outcomes (e.g., well-being, career satisfaction, promotions, salary). For example, recent research shows that career decidedness is associated with subjective well-being among college students (Uthayakumar, Schimmack, Hartung, & Rogers, 2010). Perhaps the most prominent stream is work linking Holland’s hexagonal model of vocational choices (Holland, 1997) to career outcomes. This empirically grounded theory seeks to identify the congruence between people’s personalities and their occupational choices, with the idea being that higher congruence will lead to greater vocational satisfaction, job performance, and career success. However, in an important critique published by JVB, Tinsley concludes that “the literature demonstrates that hexagonal congruence is not related to satisfaction or other important vocational outcomes” (Tinsley, 2000a, p. 147; see also Lent & Lopez, 1996). This conclusion by Tinsley has been rejoined by scholars in JVB who have variously elaborated on (e.g., Gati, 2000; Hesketh, 2000) and rejected his critiques (e.g., Rounds, McKenna, Hubert, & Day, 2000). Tinsley’s bold critique has spawned a large amount of subsequent work. This work shows that – with better measures and appropriate statistical corrections – interest congruence is a weak but significant predictor of job performance (Nye, Su, Rounds, & Drasgow, 2017), turnover (Van Iddekinge, Roth, Putka, & Lanivich, 2011), and job satisfaction (Morris, 2003; Nye, Prasad, Bradburn, & Elizondo, 2018). We return to this topic in the Discussion section.

 *3.2.2.2.3.* The specific trending topics in this cluster reveal three main “hot” areas. First, identity-based theories of careers are gaining steam, as evidenced by trending terms such as “career construction theory”, “calling”, and “vocational identity”. Second, the work on career cognitions is accelerating, as evidenced by trending terms such as “social cognitive model”, “social cognitive career theory”, and “outcome expectation”. Third, and relatedly, a growing body of scholarship focuses on the careers of young adults, as typified by hot terms such as “university student”, “undergraduate student”, “young adult”, “career counselor”, “career readiness”, and “career decision making difficulty”. Areas that are “cooling off” include work on person-environment fit, as exemplified by cool terms such as “vocational interests”, “interests”, “Holland type”, and “congruence” – although recent work on the “Personal Globe Inventory” (Tracey, 2002) represents a minor revival of this tradition.

*3.2.2.3.* Scale Development Cluster. With 38 topics, the Scale Development cluster (yellow in Figure 2) is the smallest cluster. And yet, as noted above, JVB articles on the topics in this cluster tend to be relatively highly cited, suggesting that this has been an impactful research literature for the field. In addition, it is also the cluster with the hottest terms (average article publication year = 2010 versus 2007 for the sample overall).

 The terms and articles associated with this cluster are about developing psychometrically sound scale measures. The single most substantial and sustained effort in this space relate to the assessment of the psychometric properties of the Career Adapt-Abilities Scale (CAAS). This scale measures different psychosocial resources that allow people to adapt – i.e., to fit themselves into work that suits them (Savickas, 2013; Savickas, Porfeli, Hilton, & Savickas, 2018). This scale measures a component of Savickas’ (2013) larger career construction theory, which includes adaptive readiness, adaptability resources (the focus of CAAS), adapting responses, and adaptation results. Efforts to develop a CAAS measure and assess its psychometric features began programmatically with a JVB special issue in 2012 that reported the results of 13 studies coordinated by scholars across 13 countries, as well as Savickas and Porfeli’s (2012) article empirically assessing cross-national validity of these findings. Particular attention was paid to demonstrating an acceptable and stable factor structure of the CAAS scale and its four subdimensions (i.e. concern, control, curiosity, and confidence) in its international and translated forms. Use of the career adapt-ability scale across a variety of new national contexts has continued apace in JVB in the years since the special issue (e.g., McKenna, Zacher, Ardabili, & Mohebbi, 2016), with CAAS having now been demonstrated to have a stable factor structure across an impressive variety of national contexts. Research efforts have investigated the addition of country-specific items / dimensions to CAAS to improve fit (e.g., Einarsdóttir, Vilhjálmsdóttir, Smáradóttir, & Kjartansdóttir, 2015).

Reflecting the developments mentioned in the scholarship above, trending terms in this cluster include specific CAAS subdimensions (e.g. “curiosity” “confidence”, “control”), “career construction”, “international form”, “country”, “internal consistency [estimate]”, “incremental validity”, “factor structure”, as well as “incremental validity” and “convergent validity”.

**4. Overall Discussion**

Careers is an important field of study that covers a growing number of ideas and concepts (Baruch, Szűcs, & Gunz, 2015). Given JVB’s role as the most influential journal in the study of vocational behavior, we set ourselves the aims of exploring the intellectual foundations and key contents of JVB over the last 23 years. We first identified and mapped the foundational works on which JVB scholarship builds. Then, we systematically identified and mapped article topics, topic relations, article topic citation rates, topic trends, and major topic clusters within JVB. We then reviewed topic themes, hot topics, highly cited article topics, and key JVB articles associated with each cluster. This “big picture review” of career research – as reflected in JVB – provides scholars working across the many areas of JVB with a systematic, empirically grounded overview of the literature. The topic map provides detailed information about 353 particular topics of study in JVB, comparative information about the associations between various topics in the literature, and a view of the wide variety of topics and topic trends in the journal. This systematic overview of the literature is likely to be especially helpful for a) junior scholars who are familiarizing themselves with the careers literature and who are interested in identifying key foundational readings in their particular topic area, b) highly specialized careers scholars interested in understanding their topic’s place in the broader literature, c) scholars interested in topic trends in JVB, and d) those interested in identifying opportunities to import concepts or methods from other areas of careers scholarship into their own research.

*4.1 Limitations*

This review is delimited to covering 1,490 articles from one journal – JVB. This means that we cover only a sample of the larger social science literature on careers (Lee et al., 2014). Thus, while this review reflects the contents of JVB – the premier specialist journal in the careers field – it is not necessarily representative of the larger literature on careers. However, focusing on JVB also has four key advantages: (a) it ensures that the results and review are relevant for readers of the journal, (b) it provides a clear boundary around what is considered, and (c) it facilitates reflection for readers interested in publishing in JVB as to how they might contribute to the future directions of the journal.

 While we provide a wealth of descriptive data about topics and articles associated with JVB, we are mindful of the naturalistic fallacy – i.e., “is does not imply ought”. Our review describes the foundations and topics of vocational behavior as they are, however, this does not necessarily imply how things “ought” to be in JVB. Thus, for example, in reporting things like trending topics, we do not mean to imply that scholars should delimit their research to “what’s hot” or trends in the literature. Rather, we aim to provide an empirically grounded foundation of “what is” from which scholars can derive their own beliefs about how best to contribute to the future direction of the journal going forward. The next section moves away from the more objective and descriptive approach above, to provide some selective opinions about where we believe the literature could productively go in the future.

*4.2 Future Research*

 In this section, we provide selective recommendations for future research associated with each of the major topic clusters revealed by the JVB Topic Map analysis.

*4.2.1. Future directions for worker well-being research*

As noted, there is a substantial literature linking employee personality to worker satisfaction and career success. In our view, one of the most intriguing finding in these articles is that conscientiousness appears to be unrelated (or even negatively) related to promotions and career success (Seibert & Kraimer, 2001; Wu et al., 2008). This is startling given that contentiousness is the best Big Five personality predictor of job performance (Barrick & Mount, 2000), and is a positive predictor of leadership effectiveness (Judge, Bono, Ilies, & Gerhardt, 2002). This suggests that *despite* higher performance than their peers and greater likelihood of success in leadership roles, it is common for conscientious employees to not be promoted. One plausible explanation for this finding is that conscientious employees have poorer instrumental networks with peers and higher-ups (Bozionelos, 2003), perhaps because they are too busy “in the weeds” working on low-profile tasks (Kaiser & Overfield, 2011). Given the possible lost value to individuals and firms, we believe that this finding warrants greater attention and future research.

In our view, another major opportunity for future research would be to learn more about the common career mistakes that people make. We could not find a single JVB article on career mistakes, career errors, or career regrets in the 23-year sample. A few articles exist on these themes outside of JVB (e.g., Baruch & Vardi, 2016; Blenkinsopp & Zdunczyk, 2005; Sullivan, Forret, & Mainiero, 2007), and provide some interesting suggestive findings. For example, Sullivan and colleagues’ study of professionals finds that:

“the number of hours worked produced more regrets in the oldest age category (55 and older), suggesting that when individuals review their work histories later in life, they may realize that working long hours does not necessarily lead to advancement and may come to understand the family and personal experiences that were sacrificed due to their work schedules” (2007, p. 295).

This speculative conclusion is consistent with the adage, “Nobody on their deathbed has ever said ‘I wish I had spent more time at the office’”. Another common adage shared with those contemplating career changes is that “the grass is always greener on the other side of the fence” – i.e., the perception that another career option will be better is an illusion. Yet we have little evidence of whether such adages have merit. Simply asking people with experience about their career mistakes is likely to begin to shed light on such questions. Although there are limitations to the approach of simply asking people about their career mistakes – e.g., retrospective biases and the requirement of counterfactual thinking – it seems like a good place to start to identify common career mistakes. Career scholars tend to look for and emphasize the positive and the hopeful, whereas the dark side of career is often left unconsidered (Baruch & Vardi, 2016).

*4.2.2. Future directions for career choices research*

As noted above, and as revealed by the foundations map, Holland’s hexagonal model of vocational choice is one of the major theories about career choices (Holland, 1997) – and is the most frequently cited work in JVB over the last 23 years, with 167 JVB article citations (per the JVB co-citation map analysis). Holland’s model has also been described as being “the most influential model of vocational choice making that is currently in existence” (Brown, 2002, p. 6). And indeed, the construct validity of Holland’s hexagonal model of interests is well established. However, as noted above, the predictive validity leaves something to be desired. Even the most charitable interpretations of this literature suggests that congruence can only explain around 5% of variance in outcome variables of interest (Arnold, 2004; Nye et al., 2018; Spokane, Meir, & Catalano, 2000; Van Iddekinge et al., 2011). As summarized by Phillips and Jome, “It would be fair to suggest that the expected beneficial outcomes of a congruent choice have yet to be convincingly documented” (2005, p. 131).

Scholars have reacted to the weak predictive validity of Holland’s hexagonal by attempting to either: 1) fix it, or 2) abandon it. Some seek to “fix it” by using better methods, such as new congruence indexes (Dik, Hu, & Hansen, 2007), property vector fitting (Armstrong, Day, McVay, & Rounds, 2008), or polynomial equations (Nye et al., 2018). In this same “fix it” tradition, scholarship has identified methodological weaknesses in prior measurements of environments as well as the role of people’s self-selection into already mostly congruent environments (Arnold, 2004; Chartrand & Walsh, 1999). Others seek to fix it by expanding the range of underlying interest-related dimensions – e.g., Tracey’s “Personal Globe Inventory” (2002). These all represent exciting directions for future research.

A different cadre of scholars has suggested abandoning congruence, and just focusing on alternative drivers of subjective and objective career outcomes (e.g., Schwartz, 1992; Tinsley, 2000a). For example, Tinsley concludes “After careful study of the PE fit literature it is my view that research on this model has stagnated in the past two decades as a consequence of the overwhelming appeal of Holland’s (1997) model” (2000b, p. 405). Similarly, Hesketh concludes “[I]t is time to move on in fit research. Theory and meaningfulness should drive the research, not just blind and complex statistical approaches, as has been evident in hexagonal research” (2000, p. 190). Possible alternatives to Holland’s hexagonal include the Present Status Model (Tinsley, 2000b, 2000a), revised conceptions of “fit” (Edwards, Cable, Williamson, Lambert, & Shipp, 2006), and congruence based on values rather than interests or capabilities (Sagiv, 2002; Sagiv & Schwartz, 2000). Research on each of these alternatives seems valuable.

 Moving on from Holland, a second recommendation for this literature is the major opportunity to draw on the massive literatures on decision making in psychology and behavioral economics to inform theories of career choice. As revealed in the JVB topic map and the JVB foundations map, work on decision biases appear to be largely absent from JVB over the past two decades. Concepts of obvious relevance (but rare consideration) include a) hedonic forecasting biases – i.e., reliable mistakes people make in predicting what will make them (un)happy (Wilson & Gilbert, 2003), b) image theory – i.e., which is a sophisticated theory of how decisions actually occur (Beach, 1998), and c) a host of classic biases – e.g., anchoring, ambiguity effect, availability bias, backfire effects, bandwagon effects, base rate fallacies, congruence bias, confirmation bias, curse of knowledge, the Dunning-Kruger effect, the empathy gap, exaggerated expectations, framing effects, functional fixedness, hyperbolic discounting, illusion of control, irrational escalation of commitment, and loss aversion (for good reviews, see Baron, 2007; Gilovich, Griffin, & Kahneman, 2002). One of the most celebrated career theories – social cognitive career theory (Lent et al., 1994) – extended and contextualized a psychological theory of choice from the mid-1980s to the career domain (Bandura, 1986). We find it odd that other career scholars have not followed suit, and more actively drawn on the burgeoning literatures in psychology, behavioral economics, and organizational behavior on how choices are made.

Third, while the Career Choices cluster in the JVB foundations map includes many articles on career counselling for high-school and college students, it contains comparatively little work on how managers can or should counsel their employees about career decisions. This is becoming salient as organizations like Google and other high-tech organizations emphasize career management programs as key organizational practices (Baruch, 1996; Garvin, 2013). Thus, a final recommendation is for scholars to more actively consider the role that organizations and mangers can play in helping individuals manage their careers.

*4.2.3. Future directions for scale development research*

A primary thrust of the scholarship associated with the Scale Development cluster is the development of internationally valid psychometric scales. To date, such efforts have been mostly applied to concepts from Savickas’ career construction theory (2013), such as adaptability resources (e.g., Savickas & Porfeli, 2012) and adaptive responses (e.g., Savickas et al., 2018). A concerted effort toward establishing internationally valid psychometric scales for the much broader range of concepts in the two large clusters could help establish the international validity of extant careers theory, or enrich theory by identifying cultural boundary conditions. Moreover, such efforts could, overtime, help bring the development of internationally valid psychometric scales “into the fold” of the two primary literatures within JVB. Thus, we would encourage scholars doing work related to Worker Well-Being and Career Choices to attend to and adopt the impressive scale design techniques used that have been employed by those working on the Career Adapt-Abilities Scale.

*4.3. Conclusion*

JVB has a long history of advancing theory about careers and vocational behavior. It has accomplished this by drawing on diverse perspectives from psychology, business, sociology, and philosophy (Schultheiss, 2016). We suggest that this tradition can be maintained and enhanced through future research that addresses the limitations of current research in JVB.

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Table 1. *Key Foundational Works Cited by JVB articles, 1994-2016* [[3]](#footnote-3)

|  |  |  |  |
| --- | --- | --- | --- |
| ***Content area*** | ***Most highly cited by JVB articles*** [[4]](#footnote-4) | ***“New classics”*** [[5]](#footnote-5) | ***Prominent topic themes*** |
| **1. Employee Attitudes & Motivation (red)** | Baron & Kenny (1986); Podsakoff, P. M., MacKenzie, Lee, & Podsakoff, N. P. (2003); Aiken, West, & Reno (1991); Meyer, Allen, & Smith (1993); Allen & Meyer (1990). | Bakker & Demerouti (2007); Schaufeli, W. B., Bakker, A. B., & Salanova (2006); Hakanen, Perhoniemi, & Toppinen-Tanner (2008); Johns (2006); Morgeson & Humphrey (2006) | 1) job attitudes and wellbeing 2) work design, job demands, job resources, 3) measurement validity, 4) withdrawal and employee turnover.  |
| **2. Occupation Selection (green)** | Holland (1997); Lent, Brown & Hackett (1994); Holland (1985); Bandura (1986); Super, (1957). | Sheu, Lent, Brown, Miller, Hennessy, & Duffy, R. D. (2010); Lent, Sheu, Singley, Schmidt, J. A., Schmidt, L. C., & Gloster, (2008); Lent & Brown (2006a); Lent, Singley, Sheu, Schmidt, & Schmidt (2007); Lent & Brown (2006b) | 1) vocational/career interests (e.g. RIASEC), 2) career choice and self-efficacy, 3) career development across the lifespan,4) gender and careers,5) person-environment fit. |
| **3. Career Orientations (blue)** | Hu & Bentler (1999); Savickas (1997, 2005), Savickas & Porfeli (2012); Ng, Eby, Sorensen, & Feldman (2005). | Savickas & Porfeli (2012); Savickas (2013); Savickas et al. (2009); Zacher (2014); Tolentino et al. (2014). | 1) career success and career satisfaction, 2) career adaptability and curiosity, 3) protean career and boundaryless careers 4) personality and job/career satisfaction. |
| **4. Work-Family (gray)** | Greenhaus & Beutell (1985); Hobfoll (1989); Frone, Russell & Cooper (1992); Eby, Casper, Lockwood, Bordeaux, & Brinley, (2005); Frone, Yardley, & Markel (1997). | Greenhaus & Powell (2006); Ford, Heinen, & Langkamer (2007); Carlson, Kacmar, Wayne, & Grzywacz, (2006); Casper, Eby, Bordeaux, Lockwood, Lambert (2007). | 1) work-family conflict, 2) family conflict and stress, 3) work / family and gender. |
| **5. Mentoring (magenta)** | Kram (1985); Turban & Dougherty (1994); Levinson (1978); Allen, Eby, Poteet, Lentz, & Lima, (2004). | Underhill (2006). | 1) mentoring and its outcomes, 2) the interaction of demographic factors (e.g., gender, race) and mentoring. |

Table 2.

*Overview of Key JVB Topics and Articles, 1994-2016*

|  |  |  |
| --- | --- | --- |
| ***Topic cluster*** | ***Key topics, highest impact topics, and trending topics*** [[6]](#footnote-6) | ***High impact JVB articles associated with this cluster***[[7]](#footnote-7) |
| **1. Worker Well-Being****(red cluster)** | **Key concepts**: work, job, perception, experience, (job) satisfaction, family, attitude, performance, commitment, resource, personality, organizational commitment, self**Key actors (individual & collective)**: employee, organization, worker, mentor, manager, protégé, supervisor, professional, graduate, employer **Key contexts**: work environment, China**Key methods-related terms**: dimension, longitudinal study, questionnaire, survey, meta-analysis, regression analysis, structural equation (modeling), factor model, wave**Highest impact topics:**continuance, job resource, meta-analysis, family interference, job loss, normative commitment, job demand, work interference, dimensionality, work family conflict**Trending topics:**self determination theory, proactive personality, core self evaluation, work engagement, personal resource, engagement, objective career success, wave, life satisfaction, subjective career success | Meyer, Stanley, Herscovitch, & Topolnytsky (2002); Eby, Casper, Lockwood, Bordeaux, & Brinley (2005); Paul & Moser, (2009); Byron, (2005); Xanthopoulou, Bakker, Demerouti, & Schaufeli, (2009). |
| **2. Career Choices****(green)** | **Key concepts**: career, development, interest, self-efficacy, gender, age, occupation, career development, goal, fit, status, life, education, transition, choice**Key actors**: student, participant, woman, man, adolescent, college student, child, adult, university student, (fe)male**Key contexts**: school, university, high school, Germany, United States, Hong Kong**Key methods-related terms**: score, inventory, assessment, index, strong interest inventory, utility, path analysis, control group, personal globe inventory, randomization text**Highest impact topics:**persistence, career concern, career construction theory, calling, agency, social cognitive model, path analysis, vocational behavior, career decision making difficulty, barrier**Trending topics:**career construction theory, career decision making difficulty, racial ethnic group, calling, career concern, university student, social cognitive model, undergraduate student, engineering, competenc(ies) | Lent, Brown, & Hackett (1994); Savickas et al. (2009); Purvanova & Muros (2010); Hartung, Porfeli, & Vondracek, (2005); Fox & Stallworth (2005). |
| **3. Scale Development****(yellow)** | **Key concepts**: career adaptability, curiosity, construction, adaptability, competency, developmental task, work trauma, career construction, occupational transition**Key actors**: practitioner**Key contexts**: country**Key methods-related terms**: scale, form, control, validity, correlation, confidence, item, factor structure, psychometric property, subscale**Highest impact topics:** convergent validity, career adaptability, internal consistency, psychosocial resource, curiosity, career adapt abilities scale, adaptability, reliability, confidence, occupational transition**Trending topics:** curiosity, career adapt abilities scale, career adaptability, career construction, total score, psychosocial resource, measure concern, work trauma, international form, internal consistency estimate.  | Savickas & Porfeli, (2012); Rossier, Zecca, Stauffer, Maggiori, & Dauwalder, (2012); Porfeli & Savickas, (2012); Bowling & Hammond, (2008); Haueter, Macan, & Winter, (2003). |



**1. Employee Attitudes & Motivation (red)**

**3. Career Orientations**

**(blue)**

**4. Work-Family**

 **(gray)**

**2. Occupation Selection**

**(green)**

**5. Mentoring**

**(magenta)**

*Figure 1*. Static Image of JVB Foundations Map of Co-Citation Relations. Interactive map downloads to the viewer’s computer when this link is clicked: <http://bit.ly/JVBFoundations2>



**1. Worker Well-Being**

**(red)**

**2. Career Choices**

**(green)**

**3. Scale Development**

**(yellow)**

*Figure 2*. Static Image of JVB Topic Map. Interactive map downloads to the viewer’s computer when this link is clicked: <http://bit.ly/JVB_Topics1b> . Cluster labels have been added to the map image.

1. Clicking the link downloads a JNLP map file to your computer. To open the JNLP file, *right-click* the file and select *Open* on any computer with an active internet connection and the free Java software installed (which is already on most Mac and Windows systems). [↑](#footnote-ref-1)
2. Clicking the link downloads a JNLP map file to your computer. To open the JNLP file, *right-click* it and select *Open* on any computer with the free Java software installed (which is already on most Mac and Windows systems). [↑](#footnote-ref-2)
3. Given space constraints, the full references for the works that appear Tables 1and 2 are provided in an online appendix. [↑](#footnote-ref-3)
4. The “high impact” works above are those that are a) cited by the highest number of JVB articles in their cluster, and are b) cited by a minimum of 30 JVB articles (up to 5 top works reported per cluster). [↑](#footnote-ref-4)
5. “New classics” are: a) recently published works (2006+) that are b) already being cited by JVB articles at a high rate (highest citations per year) (up to 5 works reported per cluster). [↑](#footnote-ref-5)
6. The “key” topics noted above are the subjects of the largest number of JVB articles in their topic cluster, and are organized in the table by topic type (i.e. concept, actor, context & method-related term). “Highest impact topics” are those whose articles have the highest average citation count, normalized by article year. “Trending topics” have the most recent average article publication year. [↑](#footnote-ref-6)
7. The “High impact JVB articles” associated with each cluster 1) have the highest per year citation count, 2) have a minimum of 30 citations, and 3) contain at least two topics in their title/abstract, of which > 50% belong to that cluster (to help ensure reliable cluster assignment; Lee et al., 2014). [↑](#footnote-ref-7)