

Work Engagement Research Domain: Keywords Analysis Using Social Network Analysis and Burst Detection Approach

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Abstract: - Using burst detecting and social network analysis technique in this study we the keywords appearing in the titles and abstract of the work engagement research domain. 1,406 work engagement relevant articles that were published from 1990 to 2015 were included in the study. The results showed that the keywords follow a power law distribution and revealed the fading, emerging, and central themes within the work engagement domain.

Keywords: employee engagement research; keywords analysis; burst detection; social network analysis.

1 Introduction

Personal engagement is defined as “the harnessing of organization members’ selves to their work roles” (p. 694) (Kahn, 1990). Elsewhere it has been defined as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli, Salanova, González-Romá, & Bakker, 2002, p.74). It has also been understood as work engagement, employee engagement, job engagement, and role engagement (Kim et al., 2013; Shuck, 2011).

As a result of the positive impact engagement has had on organizations, much effort has been made by researchers to examine and understand the notion of work engagement. In light of these empirical studies organizations are now beginning to focus more seriously on providing their employees the help and assistance they need to become more actively engaged in their work.

To get a sense of the employee engagement discourse, in this study, we used the SNA and burst detection technique to construct, visualize, and investigate the keywords that appear in the 1,406 article published in the engagement domain.

2 Methodology

2.1 Data

The data for the study was collected from the Web of Science (WoS) database. Thus, in order to retrieve all relevant employee engagement studies,

the following research query was entered into the WoS search engine:

Searched for topic: (“work engagement” OR “employee engagement” OR “job engagement” OR “role engagement” OR “personal engagement”)
Time span: 1990-2015; *Coverage:* all databases.

The search query retrieved 1,406 publications that appeared in 187 outlets. Among them, 1,257 (89.40%) were journal articles, 61 (4.34%) meeting abstracts, 38 (2.70%) were reviews, 27 (1.92) were editorial material, 11 (0.78) were book reviews, 9 (0.64%) were proceeding papers, 2 (0.14) were book chapters, and 2 were biographical items.

2.1 Tools Used

To construct keyword networks we used the VOSviewer application (Van Eck & Waltman, 2010). Two types of keyword co-occurrence networks were constructed, 1) the title keyword co-occurrence network, 2) the abstract keyword co-occurrence network. The keyword co-occurrence network is created when the keywords co-appear and form relationships within the engagement network.

The study also examines the issue of emerging and fading themes within the work engagement domain by analyzing the author supplied keyword co-occurrence network. Understanding these networks is particularly useful for ascertaining the kind of knowledge that is created in a domain (Choi, Yi, & Lee, 2011; Yoon & Park, 2005). To identify the emerging and fading themes the burst detection

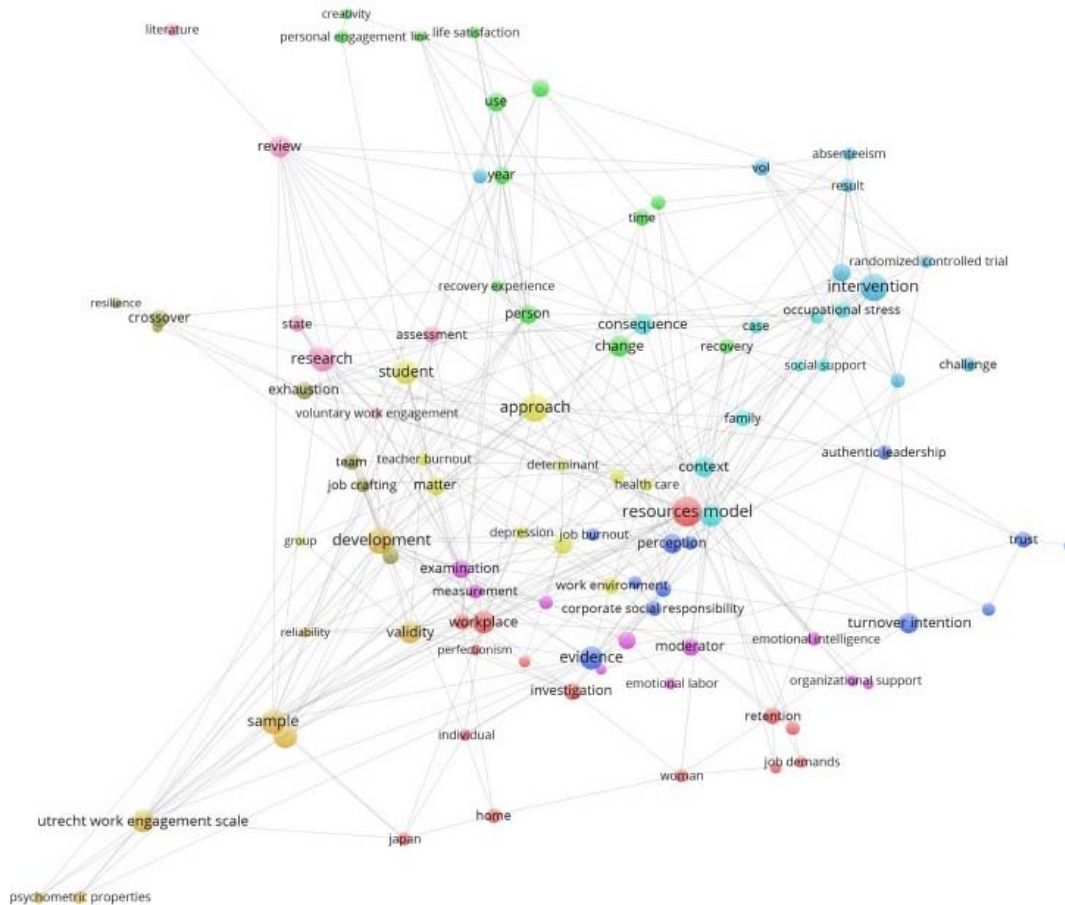


Figure 1: Title keywords network.

algorithm implemented in the Science of Science Tool (Sci2Team, 2009) was used. This is an important component of the study as the keywords and titles of the articles are the best place to look for trends in a domain (Leydesdorff, 2006).

3 Results

3.1 Semantic Networks

Emerging and fading themes (burst detection)—

As part of the burst detection analysis the three types of keywords analyzed were 1) author supplied keywords, 2) keywords appearing in the abstract, and 3) keywords appearing in the title of the articles.

The top 30 latest bursting and disappearing topics (in the author supplied keywords) are shown in Table 1. In the case where no end date is noted the keyword is defined as still being active. In the field of work engagement today the author supplied keywords that remain relevant in 2015 include support (2013 – today), perceive (2013 – today), supervisor (2013 – today), servant (2014 – today), mediation (2014 – today), develop (2014 – today), workaholic (2014 – today), CSR (2015 – today), and share (2015 – today). In the table 1 below, the term weight is applied to the keywords. In this instance, weight represents the weight of a burst word between its lengths; therefore, a higher weight could be a result of the longer length of usage and higher frequency, or both. For example, the word ‘share’

Table 1: The Top 30 Latest Bursting And Disappearing Author Supplied Topics

Author supplied				Abstract				Title			
Word	Weight	Start	End	Word	Weight	Start	End	Word	Weight	Start	End
share	2.715476	2015		turn	4.637259	2015		change	3.04291	2015	
CSR	2.192607	2015		trait	4.078944	2015		corporate	2.179121	2015	
workaholic	2.275462	2014		workaholic	3.871959	2014		influence	2.097739	2015	
develop	2.780356	2014		degree	5.844432	2014		association	2.86861	2015	
mediation	2.207636	2014		human	3.971013	2013	2013	differential	2.433204	2014	
servant	1.923196	2014		advance	3.849541	2012	2012	workaholic	2.729481	2014	
autonomic	1.967753	2013	2013	ident	4.705741	2012	2012	combine	2.314696	2014	
career	2.680976	2013	2013	independence	3.679669	2012	2012	adapt	2.046059	2014	
supervisor	2.151058	2013		wellbeing	4.084555	2012	2012	impact	2.881913	2014	
adapt	2.301708	2013	2013	Bakker	3.696665	2011	2012	daily	3.306699	2014	
perceive	1.920352	2013		conceptual	3.710562	2011	2011	servant	2.314696	2014	
HRM	2.487244	2013	2013	response	3.613955	2010	2010	exploratory	1.810843	2014	
human	1.998374	2013	2013	face	3.75205	2008	2008	office	2.239392	2014	
member	1.967753	2013	2013	challenge	3.76013	2008	2008	follow	1.951375	2014	
support	3.001476	2013		situation	4.263329	2007	2010	product	2.256296	2013	
physical	2.584234	2012	2012	general	4.810572	2006	2009	team	2.740503	2013	
ergonomic	2.800629	2012	2012	Utrecht	5.6845	2006	2008	qualities	3.421401	2013	
therapies	1.967709	2012	2012	scale	5.063631	2006	2007	autonomic	2.318883	2013	
ident	1.874888	2012	2012	burnout	10.28246	2006	2007	survey	2.591387	2013	
wellbeing	2.356475	2012	2013	exhaust	5.379206	2005	2007	support	3.134642	2013	
stress	2.731086	2011	2011	dedication	7.154425	2004	2008	practice	3.065501	2013	2013
action	2.319829	2011	2011	lack	4.015737	2003	2007	meaning	2.460724	2013	2013
multi	1.962539	2010	2012	complaint	3.980277	2002	2010	demand	1.965005	2013	2013
exhaust	1.916399	2010	2011	best	4.221951	2002	2008	promotion	3.262056	2013	2013
leadership	2.206522	2010	2010	Maslach	8.160617	2002	2008	context	2.18756	2013	2013
problem	2.573381	2010	2011	inventory	7.316431	2002	2007	social	2.258694	2013	2013
reward	2.050866	2010	2011	vigor	5.767682	2002	2007	hospital	2.209024	2013	2013
familiarity	2.737844	2009	2011	author	4.438992	2001	2008	implication	2.336646	2013	2013
medic	2.404339	2009	2009	cynic	7.052629	2001	2007	review	1.823706	2013	2013
market	1.957179	2009	2010	base	3.6586	2001	2002	commit	2.820585	2012	2013

has the highest weight of 2.715476, meaning that the word ‘share’ has appeared more frequently in the author supplied keywords of the articles included in our study. Also shown in Table 1, are the top 30 latest bursting and disappearing topics (in the abstracts and titles) supplied keywords. The results from the study showed us that the most significant emerging abstract keywords include degree (2014 – today), workaholic (2014 – today), trait (2015– today), and turn (2015– today). While other keywords that are no longer relevant today include burnout (2006-2007) and Maslach (2002-2008). From a title perspective, the results emphasize the fact that there are many keywords that have emerged as highly relevant. The longest in terms of duration include support (2013 – today) and survey (2013 – today), while more recent important keywords include workaholic (2014 – today).

3.2 Keyword Co-occurrence Network

For the purpose of this research, two types of keyword networks were constructed, 1) title keywords, 2) abstract keywords.

Title keywords network—In the title keywords network, a total of 3,279 keywords were analyzed, but only the 100 most important keywords that co-appeared a minimum of 5 times were included in the analysis. In Figure 1, node size represents number of occurrence and links represent co-occurrence relationship.

Based on co-occurrence relationships, these 100 words are grouped into ten clusters as represented by the colors of the nodes. Cluster 1 (red nodes) is dominated by resource model and work place. In cluster 2 (cyan nodes) the major keywords were context, family and social support. In cluster 3 (green nodes) person, change, time and year were important. In cluster 4 (yellow nodes) student and approach were significant. In cluster 5 (brown nodes) development, validity and sample were important. In cluster 6 (blue nodes) turnover intention, corporate social responsibility and evidence were dominant. In cluster 7 (light blue nodes) intervention was important. In cluster 8 (dark brown nodes) team and job crafting were most important. In cluster 9 (pink nodes) research and assessment were important. Finally in cluster 10

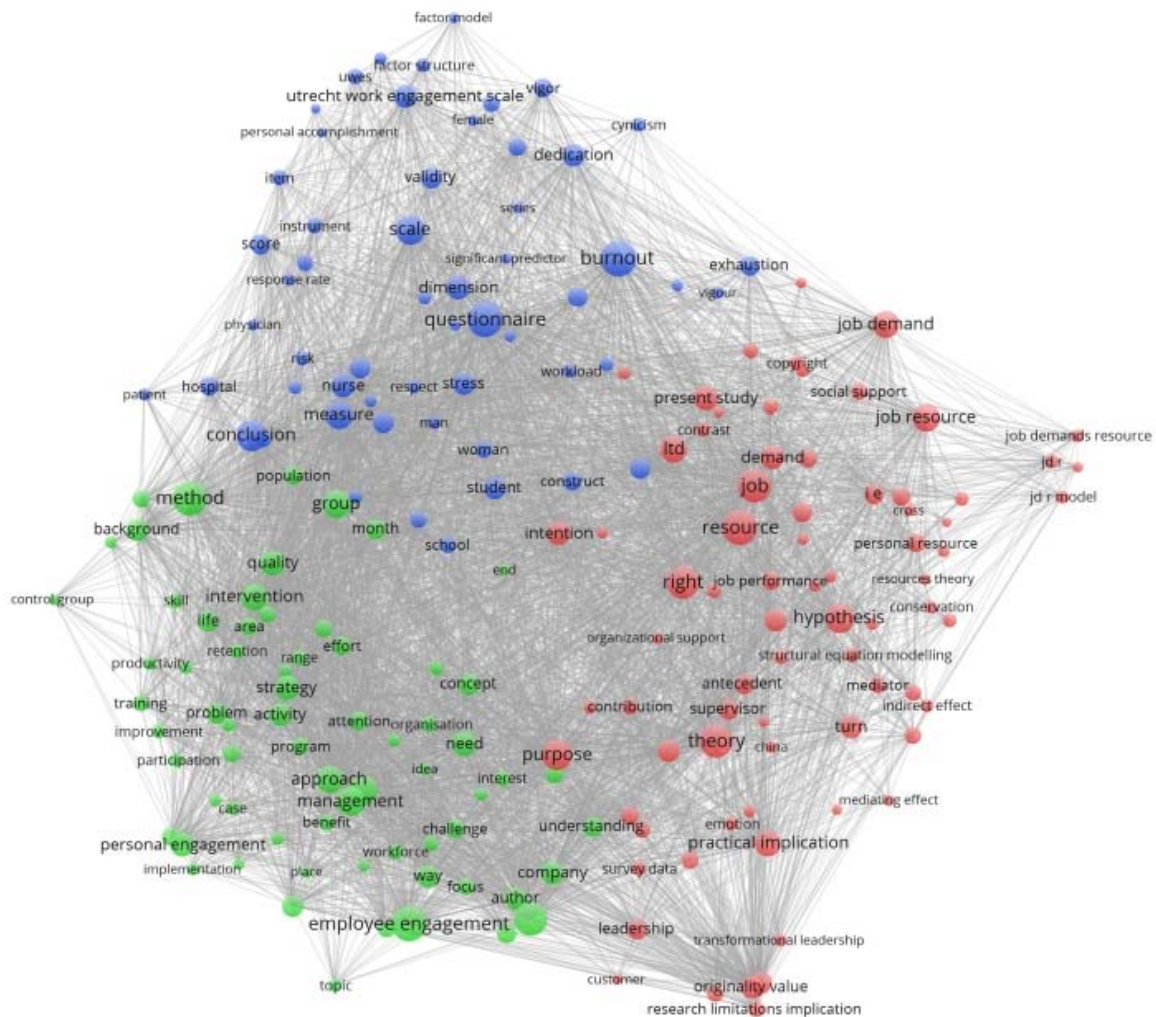


Figure 2: Abstract keywords network.

(purple nodes) moderator, examination, and measurement were significant.

Abstract keywords network—In the abstract keywords network a total of 18,675 keywords were analyzed, but only the 200 most important keywords that co-appeared a minimum of 20 times were included in the analysis.

In Figure 2, the 200 keywords were grouped into 3 clusters. In cluster 1 (red nodes) the most significant abstract key words were hypothesis, resource, job

resource and job demand. In cluster 2 (blue nodes) questionnaire, burnout, dedication and Utrecht work engagement scale were important. Finally, in cluster 3 (green nodes) employee engagement, management, personal engagement, and method were dominant.

4 Conclusion

Using the SNA and burst detection technique, the study examined three types of keywords 1) author

supplied keywords, 2) keywords appearing in the abstract, and 3) keywords appearing in the title of the articles. The results showed that the author supplied keywords that remain relevant and have weighted higher in 2015 include support (2013 – today), develop (2014 – today), mediation (2014 – today), workaholic (2014 – today), and share (2015 – today). While the most significant emerging abstract keywords include degree (2014 – today), workaholic (2014 – today), trait (2015– today), and turn (2015– today). Finally, from a title keyword perspective, the results emphasize the fact that there are many keywords that have emerged as highly relevant. The longest in terms of duration include support (2013 – today) and survey (2013 – today), while more recent important keywords include workaholic (2014 – today) and impact (2014 – today). The keywords that have emerged in the results represent important research topics in the field of work engagement. In recent years, much research effort has been done to examine the mediating effect of employees' work engagement in the relationship between antecedents (e.g., supervisor/co-worker/organizational support) and consequences (e.g., future well-being and performance) based on the job demands-resources model of work engagement (Bakker & Demerouti, 2008; Caesens, Stinglhamber, & Luypaert, 2014; Shimazu, Schaufeli, Kamiyama, & Kawakami, 2015). Also, more research interest has been placed on the need to investigate the trait components of engagement and the distinctiveness of the two types of working hard (i.e., work engagement and workaholicism) and their impact on employees' well-being (Caesens et al., 2014; Hu et al., 2014; Seppälä et al., 2015; Shimazu et al., 2015). These research efforts are primarily based on a survey method approach. In this instance, they aim to conceptualize employees' work engagement as a distinctive concept and examine antecedents of employees' work engagement as well as the impact of engagement on employees' well-being and their organizations so as to facilitate and develop the level (i.e., degree) of employees' work engagement.

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