Mapping the Landscape of Team Roles: A Cluster Analysis of Key Authors

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Abstract: This paper is a continuation of the presentation of results from a systematic literature review aimed at identifying key authors in the field of team roles and grouping them into clusters of interconnected authors. It aims to define clusters of authors focusing on team roles. The results of this work can serve to facilitate future researchers' orientation to the different typologies of team roles. The defined clusters can also be used by practitioners in the field due to the clarity of studies describing team roles. The methodology utilized in this study involved a systematic literature review followed by an analysis of author relationships through systematic literature mapping. As described by Soaita et al (2020), systematic literature mapping is considered a valuable tool for comprehensively understanding the structure of a specific topic. Following the guidelines proposed by Kuckartz and Rädiker (2019) for conducting a literature review based on literature search, we proceeded through the described phases. The obtained results have brought about surprising insights, particularly the strongly developed cluster around J. E. Mathieu. The cluster centred around S. K. Parker is also interesting in terms of its gradual linking pattern, where authors build upon each other's work gradually. The presented results serve as an initial exploratory input for further research on theories, concepts and models of typologies and taxonomies. The groups of approaches to team roles depicted in this study clarify the theoretical space and allow the approach to the definition of team roles to be grasped in a more comprehensive way.

Keywords: Systematic Literature Review, Team Management, Teams, Team Roles

1. Introduction

The field of team role typologies and taxonomies faces challenges in conceptualization, with one primary source dominating. Despite this dominance, numerous models exist in varying sizes and compositions. To facilitate analysis of team role typologies and taxonomies, we conducted a systematic literature analysis of authors identified in the Scopus database who have contributed to partial approaches.

In exploring team role typologies, it is crucial to consider authors who serve as pillars in this research. One such key figure is Meredith R. Belbin, whose model has inspired numerous authors. Belbin's model distinguishes between team roles and functional roles, with team roles representing a set of behaviours contributing to the team's progress, forming interrelated clusters known as team roles. In contrast, functional roles are determined by job requirements and workers perform specific duties based on relevant competencies (Belbin and Brown, 2022).

Aritzeta (2005) further differentiates between positional roles and team roles, describing the latter as a negotiation process between competencies and the team's needs, shaping the way each team member adapts. Margerison (2001) presents an alternate perspective, emphasizing the importance of team competencies in enabling team success rather than focusing solely on expected behaviours associated with general roles. Efforts have been made to establish links between different typologies and taxonomies. For instance, Driskell et al (2017) or Fujimoto (2016).

Establishing a theoretical foundation in team role models poses significant challenges. There is a lack of clear development pathways for theories by authors, with many relying on the widely recognized concept introduced by M. Belbin. Authors either apply this concept to specific team studies, validate its applicability, or construct their own team role concepts based on criticisms of the original concept.

Therefore, the objective of this (and previous) paper was to analyse the relationships among authors who have presented team role typologies and taxonomies in articles centred on team roles. The outcome of this analysis is a relational map that visualizes clusters of authors and their interrelationships.

2. Methodology

The methodology involved a systematic literature review followed by an analysis of author relationships through systematic literature mapping. As described by Soaita et al (2020), systematic literature mapping is considered a valuable tool for comprehensively understanding the structure of a specific topic. Following the guidelines

proposed by Kuckartz and Rädiker (2019) for conducting a literature review based on literature search, we proceeded through the following phases.

Once the aim of the study and the research question, "What does a network of author relationships based on shared authorship between authors dealing with team role typologies/taxonomies look like?" were established, we proceeded with the selection of the database. We chose Scopus as the primary source. We conducted a search for articles using the keyword/association "team roles." The selected keyword was intentionally broad. The resulting 165 articles obtained from this search satisfied the requirements for a comprehensive literature review and fell within the recommended range as suggested by Kraus et al (2022).

We obtained the article corpus primarily through access to the Scopus database and for the subsequent step, we conducted searches on publishers' websites using Zotero and manual searching. Additionally, we utilized the ResearchGate network. This effort resulted in a final set of 104 articles for further analysis.

Next, we conducted an extensive search within the texts to identify authors associated with each team role typology or taxonomy. We employed the advanced lexical search in MAXQDA 2018 software. Our query encompassed all the papers and targeted passages (along with their surrounding content) that mentioned terms such as "team role*," "typolog*," "taxonom*," "definition" and various combinations thereof. We then tagged authors who were recognized as the authors of specific typologies or taxonomies in the prepared documents. Initially, there were 30 such authors.

These authors' names were employed as keywords for an advanced lexical search using MAXQDA 2018. The software identified approximately 2,400 passages tagged with authors' names. While it is important to note that a considerable portion of these segments did not contribute new information.

Key publications on which the mapping of authors' relationships is based have been cited and highlighted. From this list, we proceeded to map the relationships between individual authors by examining the chains of relationships between the first and second authors. Only second and subsequent authors who appeared in a single author's publications and did not contribute to connecting other publications were excluded from the final map.

We chose not to include Meredith Belbin's approach in our analysis for several reasons. Coded segments related to Belbin's typology accounted for approximately 40% of all coded segments. The imbalance between the number of references to Belbin's typology and references in more recent works, such as "Team Roles at Work" (Belbin and Brown, 2022), which may have included reflections on other studies, or the limited number of available publications where Belbin built upon the ideas of other authors, played a decisive role in this decision. Therefore, our focus was on academically organic, interconnected, or lesser-known authors. It is worth noting that the vast majority of these authors mention Belbin's theory in some way, reflecting its influence.

3. Results

In a previous study (Dočekal, 2023) we focused on the authors of typologies/taxonomies in the original articles. The subsequent step involved identifying references within the refined set of documents. Within each document, we searched for references to articles that the authors believed contained the description/definition of the typology/taxonomy. These sources were compiled into a database, which was then analysed for relationships based on co-authorship. The resulting diagrams are presented in Figure 1 and Figure 2. Figure 1 depicts the main cluster comprising a significant number of authors connected through (co)authorship, while Figure 2 focuses on several smaller clusters that emerged from the analysis. In the diagrams, authors highlighted in yellow are the first authors, while authors in small font represent secondary authors (appearing at the second or subsequent positions in the list of authors of the publication). Within the data, the following authors appear to be standalone:

Ancona and Caldwell (Ancona 1990; Ancona and Caldwell 1988, 1992), Bales and co-authors (Bales 1950, 1969, 1980, 1999; Bales et al 1979; Bales and Parsons 2007; Bales and Slater 1957; Bales and Strodtbeck 1951), D. Beck (Beck et al 1999), Belton and Stewart (Belton and Stewart 2002), Benne and Sheats (Benne and Sheats 1948), Channon et al (Channon et al 2016), Davis (Davis 1992), DuBrin (DuBrin 1995), Gutiérrez et al (Gutierrez et al 2019), Hare and co-authors (Hare 1972, 1973, 1976, 1994, 2003; Hare et al 1965), Freedman (Freedman 1996), Fujimoto (Fujimoto 2016), Keyton and Wall (Keyton and Wall 1989), Knapp et al (Knapp et al 1988), Manning et al (Manning et al 2006, 2013), Mohammed et al (Mohammed et al 2008), Jacob Moreno (Moreno 1934), Julián Moreno et al (Moreno et al 2012), Nestsiarovich and Pons (Nestsiarovich and Pons, 2018, 2020), Parker (Parker 1990), Platt et al (Platt et al 1987) Wiggins and co-authors (Wiggins 1979; Wiggins et al 2003).

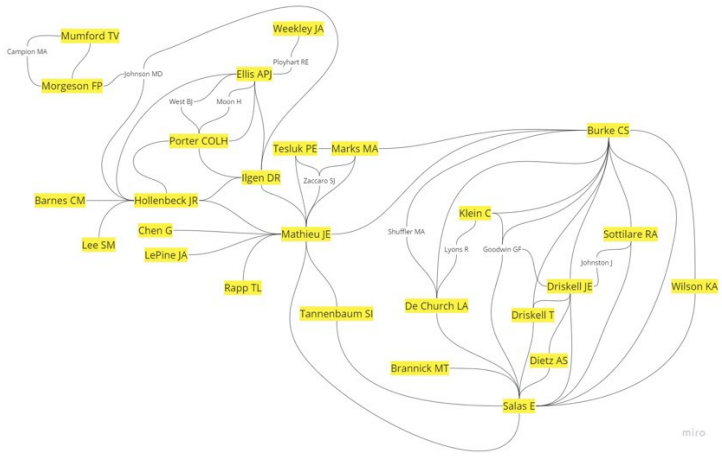

Figure 1: Diagram of the main cluster

Figure 1 shows the largest cluster of authors. In most cases, we have identified publications where these authors act as first authors, as well as multiple references where they are part of a publication team led by another listed author. The prominent authors in this cluster include Mathieu (Mathieu et al 2001, 2007, 2008, 2013, 2014, 2017), Burke (Burke et al 2006, 2017, 2018), Salas (Salas et al 1999, 2005, 2008), Ellis (Ellis et al 2003, 2005) and Hollenbeck (Hollenbeck et al 2011, 2012).

In the right section of the diagram, we observe the relationships primarily between Burke, Salas, J. E. Driskell (Driskell et al 1987, 1999, 2006, 2010; J. E. Driskell and Salas 1991, 1992, 2013) and T. Driskell (T. Driskell et al 2017, 2018). Other authors in this section include Dietz (Dietz et al 2017), De Church (DeChurch et al, 2011), Sottilare (Sottilare et al 2018), Klein (Klein et al 2009) and Wilson (Wilson et al 2005). A branch connected to Salas involves Brannick (Brannick et al 1997).

Between Mathieu and Salas, we find Tannenbaum (Tannenbaum et al 2012) and between Burke and Mathieu, there is a linked group of authors including Marks (Marks et al 2001, 2002), Tesluk (Tesluk et al 1997) and Zaccaro (Marks et at 2001) as secondary authors.

We also observe a second sphere of influence. Mathieu linked to Ilgen (Ilgen et al 2005; Ilgen and Hollenbeck 1991), serves as a gateway to other authors, including Hollenbeck. Additionally, Hollenbeck collaborates with Porter (Porter et al 2003) and especially Ellis (Ellis et al 2003, 2005), who brings other authors into the network. One loop involves Mumford (Mumford et al 2008), Morgeson (Morgeson et al 2006) and Campion (Morgeson et al 2006), which entered the network through the secondary author Johnson, who is linked to Ilgen (Ilgen et al 2005). The remaining authors involved in this section are Barnes (Barnes et al 2008), Lee (Lee et al 2015), LePine (LePine et al 2008), Rapp (Rapp and Mathieu 2007) and Weekley (Weekley and Ployhart 2013). The secondary authors connecting these authors are Johnson, as well as West and Moon (Porter et al 2003) and Ployhart (Weekley and Ployhart 2013).

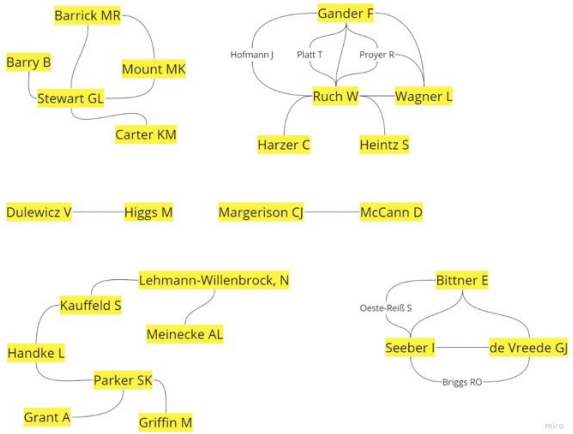

Figure 2: Smaller clusters and author pairs

Figure 2 illustrates four smaller clusters and two pairs of authors in the investigated field. The first cluster comprises Barrick (Barrick et al 1998), Mount (Mount et al 1998) and Stewart (Stewart 2006; Stewart et al 1998, 2005), complemented by Carter (Carter et al 2018) and B. Barry (Barry and Stewart 1997). Additional author connections are formed by the trio of Gander (Gander et al 2012, 2018, 2020), Wagner (Wagner et al 2020) and Ruch (Ruch et al 2010, 2018), with primary authors Harzer (Harzer and Ruch, 2012, 2014, 2015) and Heintz (Heintz 2019) linked to them. The central triad includes secondary authors Hofmann, Platt (Gander et al 2018) and Proyer (Ruch et al 2010).

A more linear connection is represented by the cluster around S. K. Parker (Parker 1998b, 2000; Parker et al 2006), which is sequentially linked to Grant (Grant and Parker 2009) and Griffin (Griffin et al 2007, 2010) through Handke (Handke et al 2019), Kauffeld (Kauffeld and Lehmann-Willenbrock 2011), Lehmann-Willenbrock (Lehmann-Willenbrock et al 2011, 2013, 2015) and Meinecke (Meinecke and Lehmann-Willenbrock 2015).

The cluster without loose ends is formed by Bittner (Bittner et al 2019), Seeber (Seeber et al 2020) and de Vreede (de Vreede and Briggs 2019), with secondary authors Briggs and Oeste-Reiß (Seeber et al 2020) also connected to this cluster.

Figure 2 also includes two author pairs: Dulewicz (Dulewicz 1995b; Dulewicz and Higgs 1999)-Higgs (Higgs and Dulewicz 2004, 1998) and Margerison (Margerison 2001; Margerison et al 1986; Margerison 1985; Margerison and McCann 1995)-McCann (McCann and Margerison 1989).

4. Discussion

The obtained results have brought about surprising insights, particularly the strongly developed cluster around J. E. Mathieu. His role as a linker between two groups of authors is intriguing and a content analysis could provide valuable insights into potential differences in their approaches to team roles. Adding a time dimension to the analysis would further enhance the comprehensiveness of the data, allowing for a better understanding of the historical inspiration and development of each author's ideas.

The cluster centred around S. K. Parker is also interesting in terms of its gradual linking pattern, where authors build upon each other's work gradually. This is in contrast to other clusters that exhibit denser interconnections.

4.1 Research Implications and Limitations

Our results demonstrate how the literature can be explored and how authors can be understood within the networks they build with their peers. The approach to the presented relationship map can be twofold: focusing on authors who play a strong role within a cluster and examining independently working individuals and their current research. It is possible that some research may have been overlooked in this analysis and can be discovered through a more in-depth exploration of the different parts of the relational schema. Therefore, the accuracy of the presented connections will only be confirmed after further exploration.

5. Conclusion

This study presents a systematic literature analysis aimed at identifying key authors in the field of team roles. By mapping the relationships among authors focusing on team roles, this research provides insights into the landscape of team role typologies and taxonomies.

The analysis revealed several clusters of authors. The most prominent cluster revolves around J. E. Mathieu, whose role as a linker between two groups of authors is intriguing. Another interesting finding is the gradual linking pattern observed in the cluster centred around S. K. Parker, where authors build upon each other's work gradually. This is in contrast to other clusters that exhibit denser interconnections.

The results of this study demonstrate how the literature on team roles can be effectively explored and how authors can be understood within the networks they build with their peers. This analysis can facilitate future researchers' orientation to different typologies of team roles and simplify the development of theoretical frameworks for their studies.

However, there are some limitations to this study. While we aimed to be comprehensive in our analysis, it is possible that some research may have been overlooked and further examination may reveal additional models and approaches. Additionally, the accuracy of the presented connections will only be confirmed after further theoretical exploration.

Overall, this study provides a valuable contribution to the understanding of the landscape of team roles and offers a foundation for further research in this field.

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