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Mapping the First 10 Years with Leximancer: Themes and Concepts in the Sports Management International Journal Choregia

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Abstract

This study uses Leximancer (a text-mining tool for visualising the structure of concepts and themes in text) to map the published research within *Sports Management International Journal Choregia* from 2005 to 2014. Drawing on 88 papers, of which 61 were classified as empirical and 27 as non-empirical ones, results reveal that the last half of the examined period concerned works that do not relate to the Greek context, which has been the case during the first years of Choregia's publication. 'Sports participation', 'physical activity', 'Greek football clubs' – all largely associated with 'management' and 'factors' – shape the main themes in the studies published within Choregia. In addition, an emphasis on positivistic approaches, through the employment of questionnaires and utilising students as the population for data collection, appears to be the dominant methodological orientation of the published content in Choregia. Becoming the platform for studies that originate beyond the American, Greek, and Iranian contexts, through special issues and invited contributions in the form of research notes would potentially increase this outlet's scope and depth (that is, context and themes, respectively).

Key Words: Sport management research, Review, Leximancer, Content analysis

Introduction

The close of the twentieth century saw the field of sport management increasing considerably, both in size and scope. Grounded in business as well as leisure, “which in turn are derivatives of sociology, psychology/social psychology, economics and law” (Shilbury and Rentschler, 2007, p. 32), sport management has attracted large interest from the scholarly community across the globe. Indeed, since 1987 and the inaugural issue of the first-ever academic outlet entirely devoted to sport management (see *Journal of Sport Management*), there has been a steady influx of literature, which – under the umbrella concept of management – surrounds and encompasses all aspects of business such as marketing, finance and, of course, management (Chalip, 2006).

Such increase in scholarly activity on topics that generally relate to sport business has given birth to a proliferation of academic journals with the goal of accommodating such research endeavours (such as *Sport, Business and Management: An International Journal*; *European Sport Management Quarterly*; *Sport Management Review*; *International Journal of Sport Management*;; *Sport Marketing Quarterly*; and *International Journal of Sport Finance*, to name just a few). This volume increase of sport management-focused research has led scholars to examine how such research evolves over the – nevertheless recent – history of the sport management field. Such examinations have been focusing not only on content; that is, what sport management scholars research (for example, Ciomaga, 2014; Peetz and Reams, 2011; Pits and Pedersen, 2005; Shilbury, 2011a; Shilbury, 2011b), but also on the means through which such knowledge is gained; that is, the methodologies these scholars employ (for example, Barber, Parkhouse, and Tedrik, 2001; Kent, Jordan, and Inoue, 2009; Quarteman et al., 2005; 2006).

In his first paper, Shilbury (2011a) sought to determine the most cited sources in the main journals in the field, while his second publication pictured the degree to which sport management journals are used as sources in ‘mainstream’ management and marketing journals (Shilbury, 2011b). More recently, Ciomaga (2014) pointed out the most influential trends upon which three prominent sport management journals have focused their attention, while Peetz and Reams (2011) performed the same, though with a focus on topics that relate specifically to sport marketing. These research endeavours seem reasonable if one considers that the sport management field is trying to establish itself as ‘legitimate’ (Chalip, 2006; Costa 2005; Slack, 1998). One way to examine that is to study how researchers have approached research in a field through a critical examination of the literature produced (Peetz and Reams, 2011). Indeed, published peer-reviewed articles provide insight into the “patterns of thinking that help to define specific fields” (Barcelona and Quinn, 2011, p. 22), and as such, are useful barometers as to the

state of a discipline's body of knowledge (Graham and Ismail, 2011). The current study represents a focused endeavour in this direction.

Thus, the purpose of this paper is to map the published research pertaining to sport management by examining a particular academic journal: the *Sports Management International Journal Choregia* (hereafter Choregia). Although we recognise there are other peer-reviewed journals that publish similar research, we delimited the study to just those articles published in Choregia, as the intention here is to explore the semantic relationships among concepts *within* these articles and the ways in which they have changed during the first 10 years of Choregia, and subsequently to reflect upon its development. The focus on conducting a review of the literature in a single journal has been used elsewhere (for example, see Sweeney and Barcelona's 2012 study on the research in the *Recreational Sports Journal*, or Peetz and Reams' 2011 study in *Sport Marketing Quarterly*), but to our knowledge, the current study is the first to employ Leximancer as the methodological tool to do so. Therefore, the contribution of this paper is that it extends the examination beyond citation and co-citation approaches to more micro-analyses within the published peer-reviewed articles.

We structure the paper as follows: after this introductory section, we offer a detailed account of the method employed to map the themes and concepts within articles published in Choregia; the next section presents the findings of this empirical work before a concise discussion on 'where we are' and 'where do we go from here' is given.

Method

Leximancer

Sport management scholars have been engaged in the identification of major patterns of research in the field by using a variety of methods. The Literature Review (for example, Zeigler, 1987), the meta-analysis (for example, Crompton, 1995), the Delphi technique (for example, Costa, 2005) or the bibliometrics (Ciomaga, 2014; Shilbury, 2011a) have all been used to achieve the aforementioned goal. Regarding the last method, Schildt and Mattsson (2006 – cited in Ciomaga, 2014) explained that bibliometric method can be separated into three categories. The first one is descriptive and encompasses the characteristics of documents that are linked to authorship, the temporal dimensions of publications, or the volume of research produced. The second relates to citation analysis which examines the sources cited by a body of literature, as well as the publications citing that body of literature. The third category of the bibliometric method is the conceptual mapping

analysis, which entails the identification in the content of sources of properties of interest.

The current study draws on the bibliometric method and employs a conceptual mapping analysis. It does so by using Leximancer (see www.leximancer.com.au for description), a text-mining software, to produce a set of concept maps and reports showing semantic structures in Choregia through its recent history. The software uses word frequency and co-occurrence data to identify families of terms that tend to be used together in the text. In essence, Leximancer uses a number of statistical-based algorithms to identify the concepts from the text data. Because the number of concepts is typically large, they are grouped by proximity into clusters, which are *themes* (Stockwell et al., 2009). *Themes* are those concepts and words that appear most frequently within the body of text. The *themes* are represented on the concept map by coloured circles, all of which are determined by size and brightness according to the occurrences within the text (Leximancer Manual, 2014). The collected data from the created concept maps is used by Leximancer to establish the relational strength between specific concepts, and is presented schematically to help interpret the strength of association (Cretchley, Rooney, and Gallois, 2010; Rooney, McKenna, and Barker, 2011). Essentially, Leximancer uses a quantitative approach to conduct qualitative analysis (Indulska, 2011), as the software assists the examination of text “from words to meaning to insight” (Leximancer, 2014). Figure 1 presents the semantic pattern extraction process and also illustrates the three most important components in Leximancer analysis.

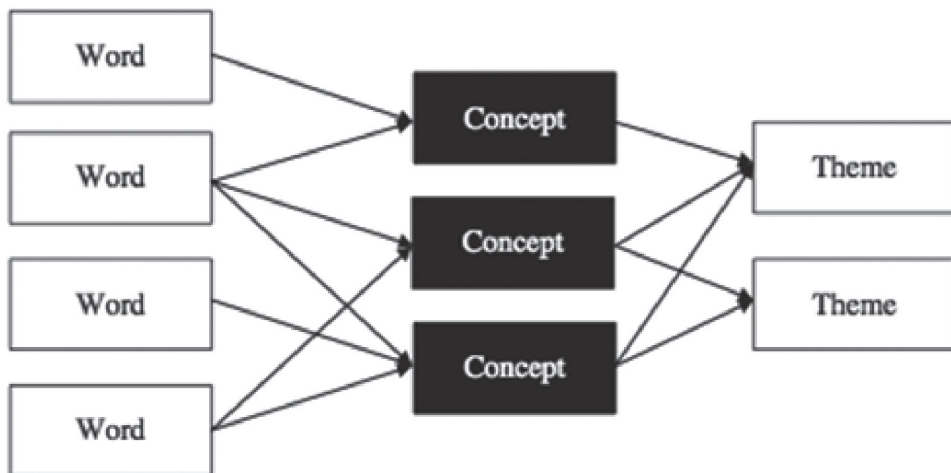


Figure 1. Simplified model of semantic pattern extraction in Leximancer (Crofts & Bisman, 2010)

According to Smith and Humphreys (2006), Leximancer is implemented as a commercial-quality program which is easily used and has been evaluated for stability, reproducibility, and correlative validity.

Data collection

For this study we collected abstracts of all articles published in *Choregia* between Volume 1 in 2005 and Volume 2 in 2014, totalling 88 articles (excluding two teaching notes). We sourced titles and abstracts from the publisher's website (see www.choregia.org). Abstracts are lexically dense and focus on the core issues presented in articles (Cretchley, Gallois, and Rooney, 2010); it is for this reason that they were used as the tools for analysis in this study. The strategy was to run an initial overall analysis of the most frequently occurring concepts, excluding common words such as 'and', 'not', etc. These words comprise a standard "stop-list" of words that form part of *Leximancer*, a helpful component of the software. On top of this, for this initial overall analysis, a number of other words were excluded that did not add meaning to this particular analysis (they are: sport, management, research, organisation, results, and analysis). For a separate analysis, we split these abstracts into two categories: empirical and non-empirical studies. Empirical articles are defined as "those where data collection or secondary analysis took place", and non-empirical articles as those "designed for review in formats such as literature reviews or theory discussions" (American Psychological Association, 2009). On completion of this exercise, 61 of the published articles in *Choregia* were empirical in nature, whilst the other 27 fell within the non-empirical category. Concept maps were created for these two data sets using Leximancer in order to compare the results to the main analysis. Again, a number of "stop words" were removed, similar to those removed from the main analysis, in order to promote the relevance of the concept maps.

Findings

This section offers a descriptive account of the key themes and concepts found in *Choregia* through the Leximancer software. With the use of this content analysis software, the trends in the journal are highlighted by the use of three concept maps. The concept maps are divided into total studies, empirical studies, and non-empirical studies. Each graph maps the trends found in the published abstracts. To sustain the reliability of the results, the same words were omitted in the stop-lists throughout each concept map process. Before we draw on these three concept

maps though, we shall start with some demographical characteristics relating to contributors.

Authors' demographics

A total of 215 authors contributed to the 88 papers considered in the study. Of these 215 authors, 75 were affiliated with academic institutions and professional bodies from Greece; 58 coming from the USA; and 43 from Iran, with the remaining papers coming from authors based in 11 different nations across Europe, Asia, Africa, and North America (see Figure 2 below).

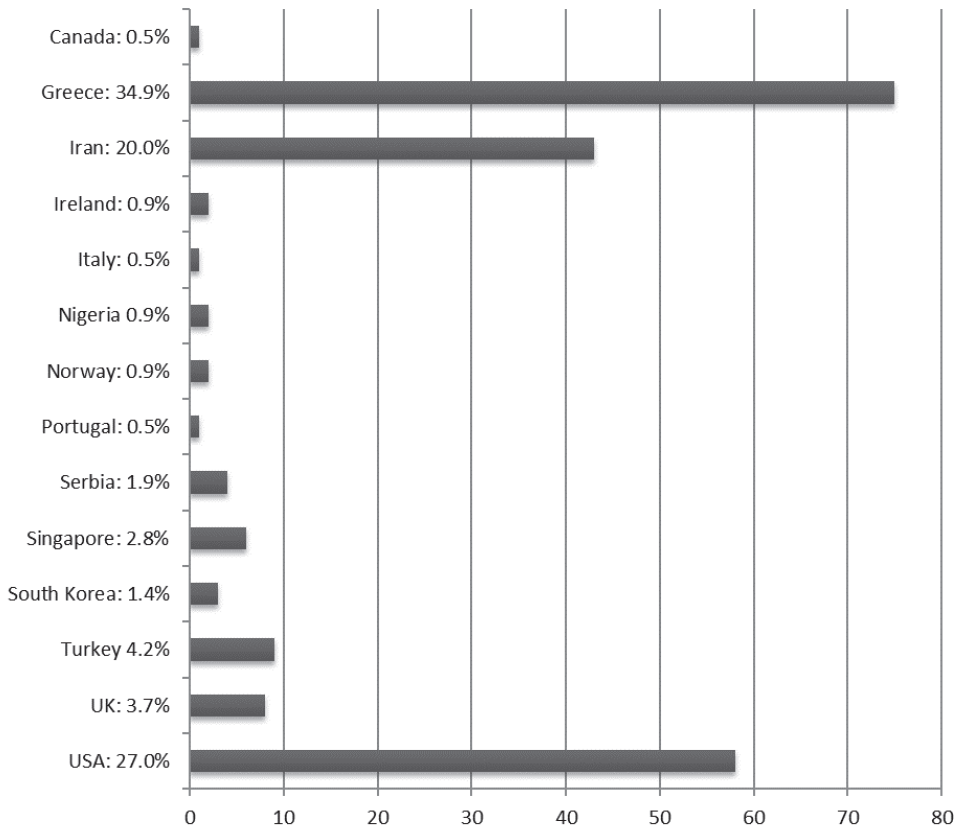


Figure 2: Countries where authors' institutions are based in.

While 35 percent of the published works appear to have come from authors based in Greek institutions, this was not consistent over the full 10-year period. In Choregia’s early years, papers were predominantly written by Greece-based authors, with 32 of the 37 authors publishing in the first three years being based in Greece, and the remaining five being based in the US. It was not until 2008 that a paper with authors who were not based in USA or Greece (Portugal, in this case) was published. However, over the subsequent years, the number of non-US- or Greek-based authors grew. Numbers shifted from only one paper in the first four years of the journal to 50 percent of authors who had papers published (81 out of 161) in the latter years of the period (2009–2014) being based at non-Greek or American institutions. The last four years of the analysis saw a decline in the number of Greek authors being published in Choregia (perhaps a much more accurate reflection of what the title of this outlet posits: ‘international’). More specifically, in the period 2007–2010, 70 percent of the published authors were Greek (53 out of 76), but in the subsequent years, out of 120 authors, only eight were based in Greece (that is, seven percent). The decline in Greek-based authors coincided with an increase in authors based in Iran. From there being no Iranian-based authors in the first six years of the publication, 36 percent of authors in the subsequent four years were based in Iran (43 out of 120). Indeed, during this period, 14 out of the 42 (33 percent) papers published in Choregia had an Iranian-based author (see Figure 3 below).

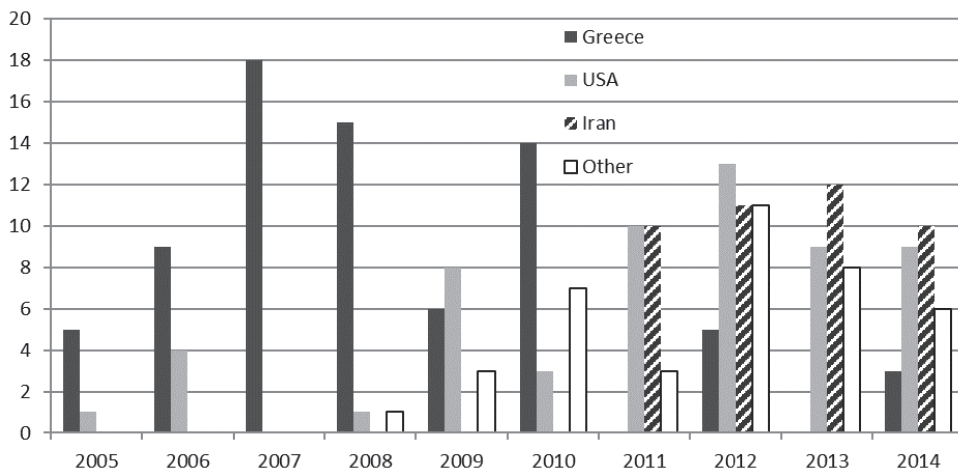


Figure 3: *Number of publications: Institutions and the dominant countries these are based in.*

Paper type

As previously mentioned, of the 88 papers, 61 were categorised as empirical, whereas 27 were categorised as non-empirical. For the first six years of the studied period, the numbers of empirical and non-empirical papers were similar; by 2010, of the 46 papers that had been published, 23 were empirical and 23 were non-empirical. Figure 4 depicts the ratio of empirical- against non-empirical-oriented studies during the examined period.

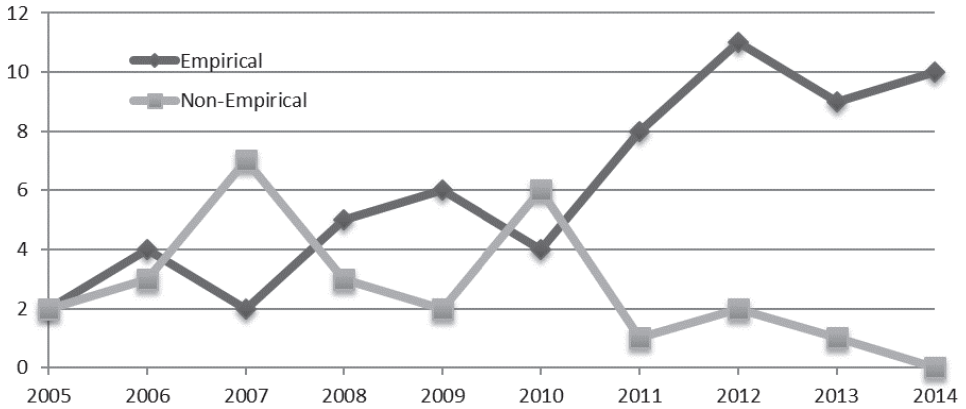


Figure 4: *Empirical and non-empirical works over the examined period.*

However, in the latter four years of the period, only four non-empirical papers were published, as opposed to 38 empirical ones. This discrepancy is not due to a change in the number of papers being published: from 2007 to 2014, there were between eight and 10 papers published each year, with the exception of 2012, which saw 13 papers published. Rather, the change between empirical and non-empirical papers appears to be due to the change in the countries in which authors are based. As Figure 5 shows, Greece-based academics have a reasonably even approach when it comes to publishing empirical or non-empirical papers (41 authors had empirical papers published, compared to 34 non-empirical over the examined period).

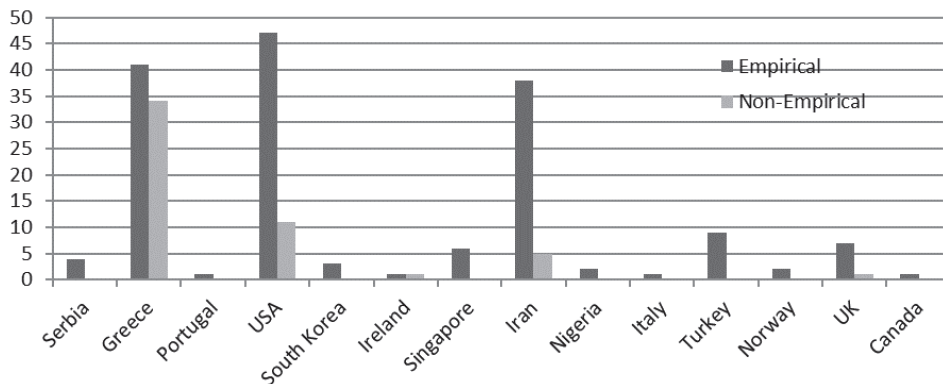


Figure 5: Empirical and non-empirical works per country (Institutions, not authors)

Thus, as Greece-based authors were predominant in the early years of *Choregia*, there was an even number of empirical and non-empirical papers submitted. It is noticeable that Greece-based authors are the most prevalent in publishing non-empirical papers in *Choregia*, and thus, as the number of Greece-based authors decreased in the latter years of the study, so did the number of non-empirical papers. Conversely, as the number of Iranian-based papers increased in the latter four years of the journal, their focus on empirical papers (38 authors had empirical papers published, compared to five non-empirical papers) contributed to a rise in the number of empirical papers during this period.

Overall

The Leximancer analysis of all 88 papers published in *Choregia* produced 45 concepts, grouped together as 12 themes, as shown in Figure 6. Leximancer clusters the concepts together, with concepts that often appear together in abstracts drawing each other, and settling close together on the map. Concepts are represented by dots; the larger the dot is, the more prominent the concept. Concepts that attract each other and are clustered together are grouped into themes, which are displayed as coloured circles. The size of the circle is not relevant; instead, it is the colour of the themes that demonstrates their prominence. The most important theme is coloured red, and the colours progress around the colour wheel with the least important themes being coloured purple.

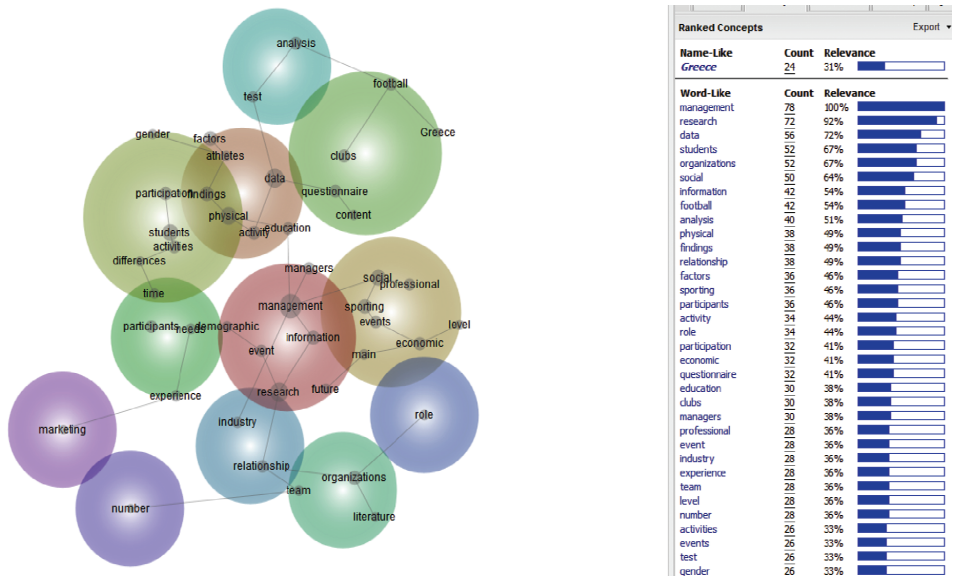


Figure 6

As Figure 6 shows, the most prominent theme across all 88 papers was Theme 1 (see darkest red circle). Perhaps unsurprisingly for a sport management journal, this theme consists of concepts including ‘*management*’, ‘*information*’, and ‘*managers*’, indicating the focus of *Choregia* towards sport management. Interestingly, two of the other concepts are ‘*future*’ and ‘*research*’, possibly demonstrating the prevalence for authors to acknowledge that their papers contribute to the wider literature, thereby identifying routes for research to take place in the future. The second most prominent theme, Theme 2 (lighter red circle), is linked to Theme 4 (biggest green circle), both of which focus on data gathering by the contributors of each paper. Thus, the concepts ‘*factors*’, ‘*athletes*’, ‘*data*’, and ‘*activity*’ appear in Theme 2, and ‘*gender*’, ‘*participation*’, and ‘*activities*’ appear in Theme 4, while ‘*findings*’ and ‘*physical*’ appear in both themes. This indicates that the number of papers published in *Choregia* are seeking towards determining factors that potentially lead to physical activity and sport participation.

Conversely, the third most prominent theme, Theme 3 (gold circle, attached to Theme 1), highlights other areas of research on which *Choregia* has focused, including ‘*economic*’, ‘*social*’, ‘*sporting*’, and ‘*events*’. This represents the number of papers that have focused on the hosting of sports events, and in particular the social, sporting, and economic impacts of such events. Given that these are three of the most researched impacts of the hosting of events, it is perhaps unsurprising that these have been researched in *Choregia*. However, Leximancer has not recognised

the other primary legacies – such as urban and infrastructural (Chappelet and Junod 2006) – as concepts from empirically published works in Choregia.

The fact that Leximancer has highlighted *‘professional’* as a concept, and has not identified anything regarding amateur sport, indicates that many of the papers published by Choregia have focused on professional sport. Indeed, the only individual sport that is recognised as a concept by Choregia is *‘football’*, in (Theme 5 top right green circle), which is closely linked with *‘clubs’* and *‘Greece’*. Moreover, Theme 5 also contains the concept of *‘questionnaire’* (which is linked with *‘data’* in Theme 2). The fact that *‘questionnaire’* is alongside *‘football’*, *‘clubs’*, and *‘Greece’* in Theme 5 indicates that questionnaires and surveys are often the methodological tool through which Greek football clubs have been studied by the contributors in this journal.

Empirical Papers

The Leximancer analysis of the 61 empirical papers produced 44 concepts, grouped into 11 dominant themes. Given that there are 61 empirical papers compared to 27 non-empirical papers, it is not surprising that the map (Figure 7) does not differ greatly to the overall concept map. Indeed, of the 11 themes identified from the 61 empirical papers, each of the three most prominent ones can also be found in the overall concept map.

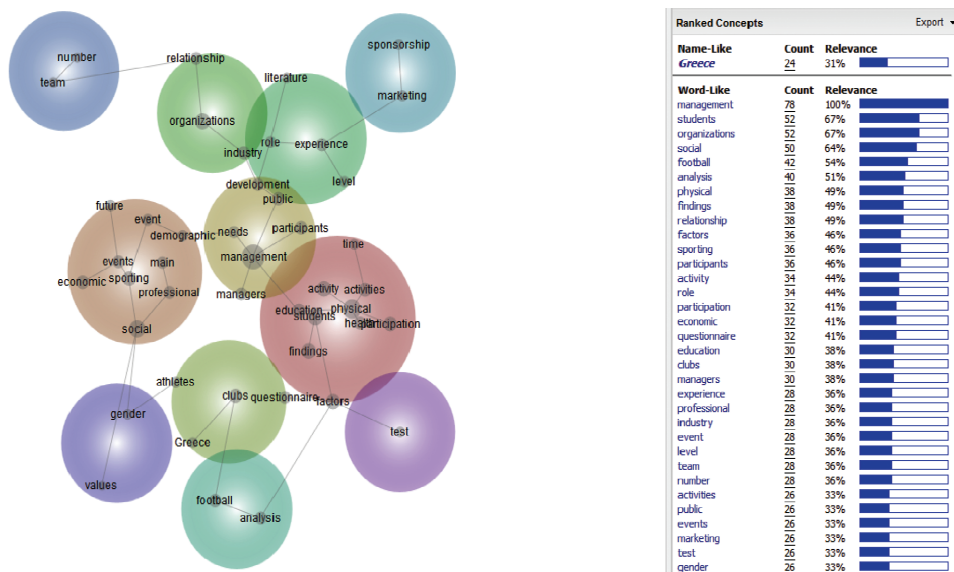


Figure 7

The most prominent theme in the empirical papers is Theme 1 (darkest red circle). As with Theme 3 in the overall concept map, Theme 1 demonstrates that there has been an empirical focus on sport participation, with *'activity'*/*'activities'*, *'physical'*, *'health'*, and *'participation'* being particularly prominent within this theme. Despite this being the prominent theme of empirical papers, there is very little link between this theme and the others mapped by Leximancer. However, these concepts can be developed further; the concepts with which *'physical'* and *'participation'* have the most links are also grouped in Theme 1, with the concept *'participation'* being most linked to *'factors'*, there being a 33 percent chance that papers studying sport participation are considering the causes that lead to partaking in sporting activity. *'Participation'* is also linked to *'public'*, despite *'public'* not appearing in Theme 1 – thereby indicating that a number of studies have concentrated specifically on the sport participation of the public. Conversely, while the concept *'physical'* also demonstrates links with *'public'*, it also seems to be linked to *'students'*, perhaps indicating that studies examining physical activity have utilised university students as their research population and/or focus. Furthermore, aside from *'students'*, *'physical'* demonstrates links to *'education'*, thereby highlighting, once more, the focus on physical education.

The second most prominent theme, Theme 2 (lighter red on the left), also seems to have connections with Theme 3 in the empirical concept map. Again, this contains studies on *'events'*, particularly the impacts and legacies, including *'economic'*, *'social'*, and *'sporting'*. This can perhaps be explained by the fact that Athens hosted the 2004 Summer Olympic and Paralympic Games, with five papers during the period focusing on Olympic events. While not all of these study the Athens Games, it is possible that the hosting of these Games provided a catalyst that has led to an increased interest in the legacies and impacts of sport mega-events. However, it is noticeable that Leximancer does not recognise the word Olympic as a concept, despite there being five papers with the word in the title.

As with the overall concept map, the only sport specifically mentioned is *'football'*, and this has links to *'clubs'*, which in turn is linked to *'Greece'*; again, this highlights the focus that Choregia has placed on Greek football. However, *'Greece'* has the strongest link to *'management'*, with a count of these concepts appearing together 78 times and with Leximancer attributing a relevance of 100% to these two concepts. This is perhaps unsurprising, considering the nature of Choregia as a sport management journal. Joining *'Greece'* and *'clubs'* in Theme 4 is the concept of *'questionnaire'*, demonstrating the methodology used in empirical papers studying *'clubs'*.

Non-Empirical Papers

With regard to non-empirical papers, the Leximancer analysis produced 45 concepts, split into 15 dominant themes (See Figure 8).

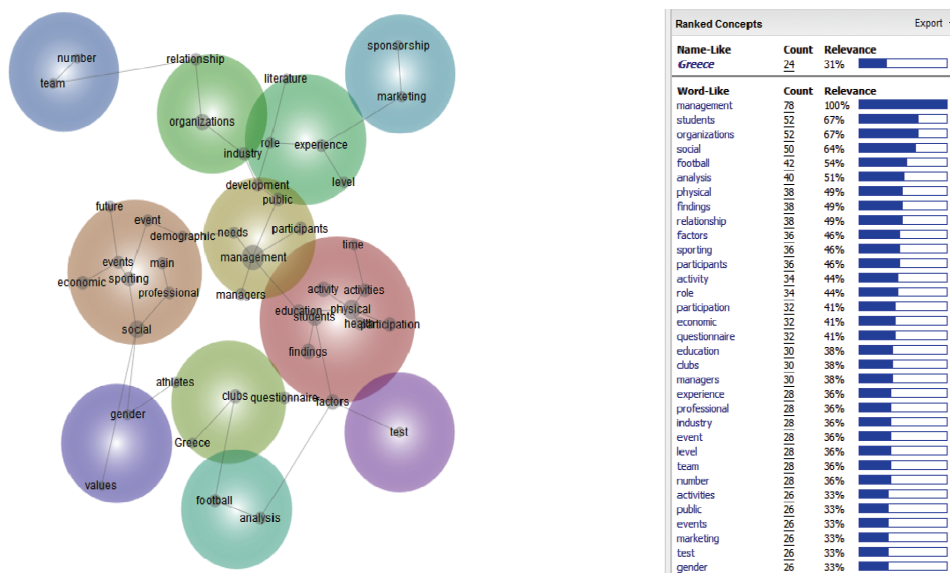


Figure 8

The most prominent, Theme 1 (darkest and smallest red circle), is similar to the most prominent themes in the empirical and overall concept maps in that it has a focus on ‘students’, ‘physical’, ‘activity’, ‘participants’, and ‘education’, with the concept with the largest circle being ‘management’. These concepts are also linked by nodes to ‘health’, ‘participation’, and ‘factors’, despite these concepts being in different themes, highlighting the focus assigned by Choregia during its publication time. This shows that Choregia has focused on papers looking at sport participation and sport activities, with this showing particular prominence in both empirical and non-empirical papers. The other concepts in Theme 6 demonstrate that papers have looked at the ‘factors’ which contribute to sport participation, with 38 percent likelihood of ‘factors’ and ‘participation’ appearing together. Similarly, the concept ‘students’ is linked to ‘factors’, indicating that there have been a number of cited studies that investigate the factors that lead to student participation in sport, or that contributors have used students to collect data that relates to sport participation, but not necessarily concern this particularly population.

Moreover, Theme 2 (larger red circle) also contains the concepts '*professional*', '*industry*', and '*organization*', once again highlighting the focus that Choregia has placed on professional sports organisations, and indicating that there is a gap in Choregia's catalogue for looking at non-professional sport. This further highlights the fact that '*football*' is again the only sport that is directly named, with strong links to '*Greece*' and '*clubs*' in Theme 4, showing that this is not just a concept that is being studied in empirical papers. Unsurprisingly, while the empirical concept map linked the concepts of '*Greece*', '*football*' and '*clubs*' to '*questionnaires*' – thereby highlighting the prime methodological tool employed by contributors in Choregia –, the same distinction is not found in the non-empirical papers. Theme 10 includes '*literature*', although this is the only indication of a methodology to be found as a concept in the map; indeed, the word 'methodology' itself is not a concept recognised by Leximancer in any of the concept maps. This could indicate that Choregia is not strict as to the guidelines for its abstracts; therefore, it might be beneficial for Choregia to set a standard structure for abstracts in the future, which would also allow analyses such as this to provide a more systematised review of the papers.

Furthermore, despite there being a similar number of concepts identified by Leximancer for the empirical and non-empirical papers (44 and 45, respectively), there are an increased number of themes provided by non-empirical papers (15, compared to 11 and 12 empirical themes and themes for the overall concept map, respectively). While the more important themes have more concepts that appear in more than one theme (five compared to two), the less important themes have concepts with little link to other concepts. The empirical concept map has only one concept that is in a theme of its own ('*test*'), whereas each of the five least important themes in the non-empirical concept map have just one concept in them, with only one node to a single other theme. While one of these concepts is '*test*', the same as the empirical concept map, the other four single concept themes are '*analysis*', '*participation*', '*number*', and '*team*', indicating that there are a number of concepts that are not necessarily used on a regular basis within the non-empirical abstracts.

Concluding notes

The purpose of this study was to map the research territory of contemporary sport management, by analysing the content of Choregia using Leximancer as the methodological tool, thereby attempting to discern the concepts and themes of the research published in this particular academic outlet during the first decade of its life.

However, caution is required when interpreting the findings, given that the

analysis was not only limited to abstracts (many of which, judged by the present authors, do not offer an accurate reflection of the actual paper), and given the limited scope of the study to only those articles that appeared during the last decade in *Choregia*, which, of course, may not reflect the wider field of sport management research. The intention here was simply to offer a descriptive picture by, crucially, not attempting to identify gaps and/or missed opportunities. Potentially, future studies may attempt to perform a similar content analysis across a number of leading sport management journals, allowing for comparisons with the results of this study and providing a clearer picture of the research territory of contemporary sport management beyond *Choregia*. Moreover, future studies may consider looking at the development of themes and patterns across a number of decades in order to map a history of sport management research.

To some extent, the short history of *Choregia* demonstrates a trend towards an increased number of empirical studies which, importantly, relate to more and more diverse international contexts. A call for special issues and invited research contributions could be just two ways of further developing this trend. Generally, it is our belief that a direction that points the way to a future in which diverse concepts and themes that attract the interest of the wider international sport management scholarly community can offer another platform upon which arguments on the specificity of sport can be grounded.

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