Patterns and Regularities in the European Marketing Academic Community: A Social Network Analysis of the EMAC Annual Conferences 2000-2010

Abstract

Recent years have seen a growing interest in the nature of scientific collaboration, as researchers have become interested in how knowledge is generated in research communities. The aim of the current paper is to provide insights into the structure of the European Marketing Academy (EMAC) and to examine the appearance of patterns and regularities in the way EMAC members choose collaboration partners. The work is based on a Social Network Analysis of the co-authored publications presented at the 2000-2010 EMAC conferences. Results show that the main selection criteria for choosing collaboration partners is socio-cultural and geographical) proximity rather than marketing sub-discipline, pointing towards a very systematic tendency for EMAC members to be organised around institutions in the same or culturally related countries.

Keywords: *EMAC, Social Network Analysis, co-authorship, geographical clustering, track-based clustering*

Track: *Marketing Research and Research Methodology*

1. Introduction

Collaboration between researchers play an important role in scientific development in general and consequently, numerous studies have showed an increase in the number of co-authored research papers (Laband and Tollison, 2000; Moody, 2004). The aim of the current paper is to examine the appearance of patterns and regularities in the way European Marketing Academy (EMAC) members choose collaboration partners, thus providing insights into the structure of EMAC as scientific community. These patterns and regularities are uncovered by means of a Social Network Analysis (SNA) of the co-authored publications presented at the 2000-2010 EMAC proceedings, with a specific focus on 2001, 2004, 2007 and 2010. This paper will address two research questions: a) what are the characteristics of the structure of the EMAC collaboration network? and b) which factors influence the choice of collaboration partners for joint publications in the EMAC collaboration network?

2. Background and Literature Overview

The tendency for co-authorship has been increasing across almost all scientific disciplines. Various explanations for this trend have been put forward. Firstly, financial considerations: collecting data from large samples using market research agencies may be prohibitively expensive for one institution, encouraging collaboration across several institutions. Secondly, specialisation: as scientific collaboration provides better opportunities for specialisation and division of labour, it is far more efficient to bring in a new scholar than to learn new material oneself. This often results in specialists being brought in to conduct the analyses (Laband and Tollison, 2000; Moody, 2004). Finally, official requirements: major sources of external funding such as the EU Framework Programs often expect collaboration between multiple partners in any application for project funds.

Although research communities grow over time given that more academics join in to express their intellectual ideas, they are often comprised of "small worlds", where the average separation between the individual researchers is shorter than would appear from random data (Vidgen, Henneberg and Naudé, 2007). In their study of the IMP Group, Morlacchi, Wilkinson and Young (2005) and Henneberg, Jiang, Naudé and Ormrod (2009) found the research community to be highly clustered, where some researchers collaborated extensively and played a key role in linking different parts of the network. This result is supported by Barabási, Jeong, Néda, Ravasz, Schubert and Vicsek (2002) and Newman (2001), who reported collaborating scholars form "small worlds" as the typical distances between scholars are small. Similarly, Moody (2004) reports that the pattern of co-authorship within the discipline of sociology shows a "*steadily growing cohesive core*" (Moody, 2004: 235).

Recent evidence thus suggests a degree of preferential attachment within social networks of collaborating authors, as researchers tend to be organised around institutions and collaborate closely within specific clusters and groups of interest (Eaton, Ward, Kumar and Reingen, 1999; Barabási et al., 2002; Liu, Bollen, Nelson and Van de Sompel, 2005). In an effort to explain the causes of clustering within research networks, Morlacchi et al. (2005) demonstrated a tendency for geographical grouping within the Industrial Marketing and Purchasing (IMP) Group, meaning that disconnected subgroups emerged in the network containing researchers from one country; a possible explanation could be linguistic communality. These findings are supported by Liu et al.´s (2005) study on co-authorship in the digital library research community that found collaboration between authors from different countries to represent a mere 7 % of network members.

3. Method and Empirical Material

SNA concerns the comprehension of the connections among social actors and the consequences of these connections. It reveals a structure of linkages within which actors are embedded. Actors are described by their relations, not by their attributes and the relations are just as fundamental as the actors that they connect (Wasserman and Faust, 1994). In general, SNA can be defined as a structured way of analysing relationships within groups by providing a rich and systematic means of assessing informal networks by mapping and analysing relationships among people, teams, departments or even entire organisations (Cross, Parker, Prusak and Borgatti, 2001).

SNA has a broad range of application possibilities. One such is the analysis of informal networks of academics collaborating on research papers. As this type of network is characterised by the absence of any formal hierarchy, a SNA could reveal patterns and regularities in the way in which academics work together to generate knowledge. Furthermore, it could disclose the structure that shapes the creation of knowledge within a given field of research (Vidgen et al. 2007). Recent years have also seen an increasing amount of literature on SNA. This large and growing body of literature has, among other things, applied SNA as a tool for conducting citation analyses (see for instance Zinkhan, Roth and Saxton, 1992, and Carter, Leuschner and Rogers, 2007). However, little attention has been paid to date to the application of SNA in a conference setting, with only very few examples existing in the relevant literature (e.g. Morlacchi et al., 2005; Vidgen et al., 2007; Henneberg et al., 2009).

The current paper adopts the SNA method used by Vidgen et al. (2007) and Henneberg et al. (2009) to analyse the pattern of co-authorship (two or more authors) in research papers presented at the EMAC conferences in 2001, 2004, 2007 and 2010. By focusing on co-authorship rather than citation, emphasis is placed on the social relationships of a network as it must be assumed that authors co-authoring a scientific research paper have an actual social relationship. Data was retrieved manually from the EMAC conference proceedings and consisted of co-authored competing research papers; poster- and special session presentations and papers marked as "withdrawn" were excluded from the sample. Authors were identified by surname and care was taken to identify potential problems such as when names were inconsistent over time, when the style of the conference proceedings made distinguishing between first-name and surname difficult or when two or more authors shared the same surname.

4. Results and Discussion

Over the years of the period under examination, 4,023 actors have co-authored competitive papers at EMAC, more than half of which (2,640 actors) belonging to the main component of the network (i.e. the largest interconnected "chain" of actors that can be identified) each year. This is a first indication of the strong propensity of EMAC members to collaborate.

Table 1 shows the evolution of the EMAC conference over the years in terms of networks' density and diameter, that is, the percentage of all possible ties among actors that are present in a component, and the number of steps that are necessary to get from one side of a network to the other, respectively. Figure 1 presents the exact structure of the main components in each of the selected years 2001, 2004, 2007 and 2010 in terms of actors, number of co-authored papers, actors' affiliation and country, and track the papers have been presented in. The main component of 2004 is atypical in that all members have collaborated in one track and most on just one paper, making generalisations about the behaviour of this group difficult.

The density of the main components in 2001 is relatively high, indicating a comparatively well connected network. This is also reflected in the diameter of the components. As none of the

Table 1. EMAC network connection and distance indicators, selected years

Year	Conference	Total no. of actors in network	No. of actors in first 3 main components	Density of first 3 main components	Diameter of first 3 main components
2001	30th EMAC	356	11	0.2000	4
			10	0.1556	3
			7	0.2222	3
2004	33rd EMAC	622	25	0.2292	5
			18	0.0948	4
			15	0.1000	2
2007	36th EMAC	916	24	0.0797	4
			19	0.0965	5
			14	0.1264	3
2010	39th EMAC	893	37	0.0541	6
			24	0.0833	3
			15	0.0952	2

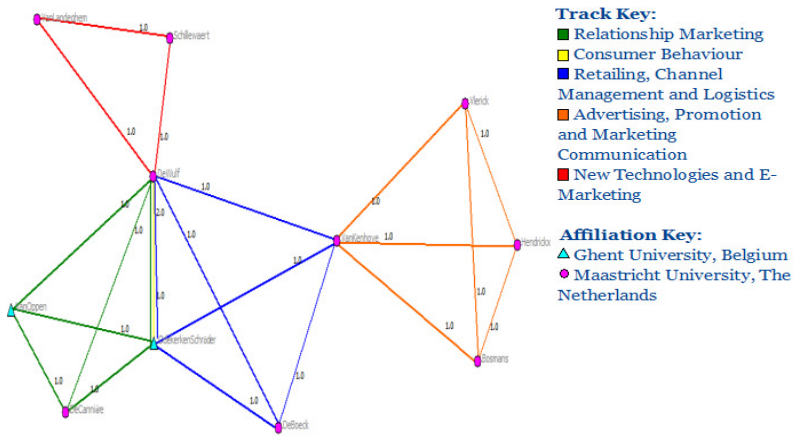
diameters exceed 5, they all display "small world" properties, indicating more tight structure, relatively unobstructed diffusion of theories and ideas and easiness of communication among component members. While the density of the main component of 2004 is relatively high due to the atypical characteristics described above, the two smaller components´ densities are low. This means that the two smaller components are not very compact and their structures are not very robust. The diameters of the components, however, show that all three components display "small world" properties. The densities of the components in 2007 and 2010 are relatively small; this, in combination with the increasing total number of actors, indicates that the network over the years becomes more sparsely connected. The diameters of the components, however, show that they all still display "small world" properties. On the other hand, the first component of 2010 shows a diameter of 6 and it is the first component with "large world" properties, indicating that the latest EMAC research community may be getting more loosely structured as a whole as well as at the level of the individual components.

The most interesting result to emerge from the study, however, is that the majority of the components display a consistently strong or very strong tendency for almost all actors in a given component to come from a limited number of institutions located in one country or in countries with very close geographical and cultural proximity (Figure 1 and Table 2). An explanation for this might be preferential attachment, as some actors apparently prefer to collaborate with actors of close personal proximity to themselves. It is obviously easier and less risky to work with colleagues from the same workplace and/or who speak the same "language" academically and socially. A second possible explanation could be that small groups of researchers interact socially and have developed certain ties that in turn develop into professional working relationships. In this respect, current findings support previous research that identified a strong tendency for geographical grouping within networks (Liu et al., 2005; Morlacchi et al., 2005).

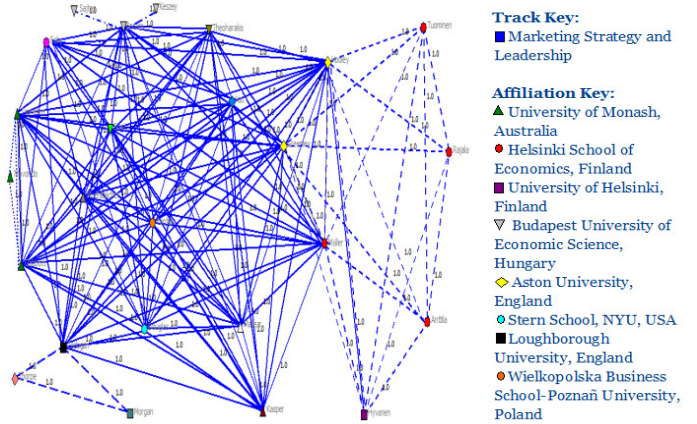
Another interesting result is the way in which the actors in the components are grouped according to EMAC conference track. The majority of the components across all years displayed weak or no track-based clustering (i.e. number of papers presented per track). If track submission is used as a proxy to actors' marketing principle served and overall scientific expertise, it gets clear that social and/or geographic proximity prevails over scientific proximity in the way EMAC network members choose their collaborators. The components, however, indicate a tendency for EMAC members to work across more tracks within the field of marketing over the years, as it appears that the central actors tend to change collaboration partners within each component

Figure 1. Main components in terms of actors, number of co-authored papers, actors' affiliation and country, and conference track, selected years

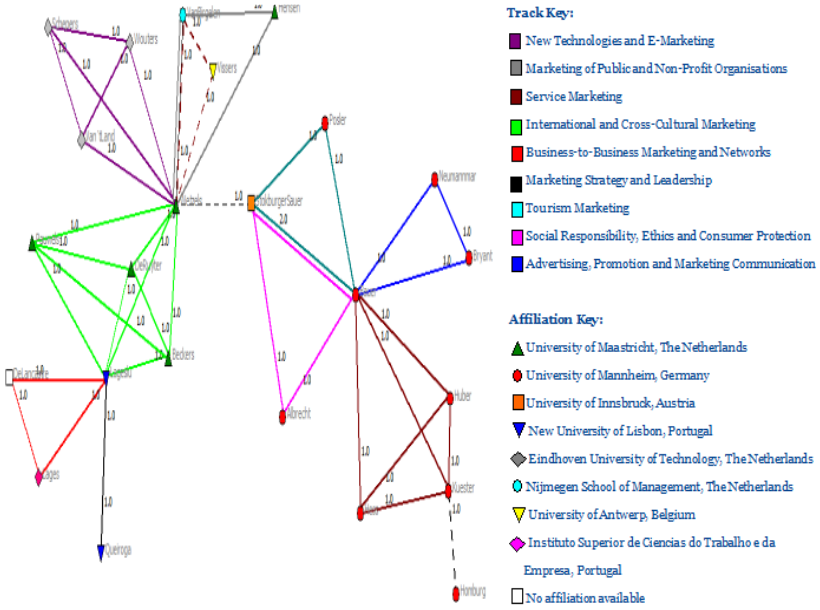
2001



2004



2007



2010

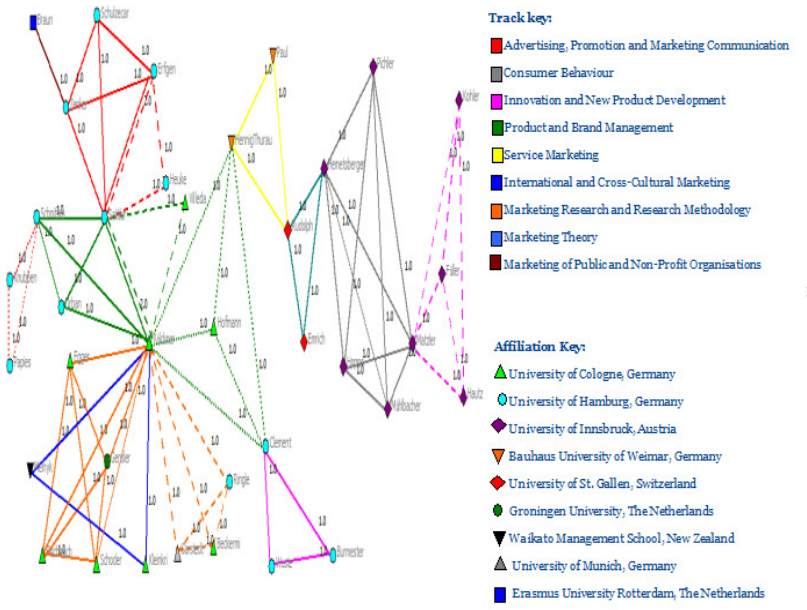


Table 2. Main clustering tendency of EMAC network, selected years

Year	Component	No. of countries[1]	No. of Institutions	Geographical clustering	No. of tracks	Track-based clustering
2001	1	2 (**NL**, BE)	2	YES (v. strong)	5	NO
	2	3 (**UK**, AUS, NZ)	5	YES (strong)	4	NO
	3	4 (**BE**, NL, USA, SWI)	4	YES (weak)	3	NO
2004	1	14	17	-	1	-
	2	4 (**NL**, USA, BE, GE)	7	YES (strong)	5	YES (moder.)
	3	4 (**UK**, HK)	6	YES (v. strong)	7	NO
2007	1	5 (**NL-GE**, POL, AU, BE)	9	YES (strong)	9	NO
	2	4 (**NL**, AUS, AU, CAN)	9	YES (weak)	5	YES (moder.)
	3	2 (**NL**, NZ)	8	YES (v. strong)	6	NO
2010	1	4 (**GE-AU**, NL, NZ, SWI)	9	YES (v. strong)	9	YES (weak)
	2	4 (**BE**, AU, SWI, CAN)	6	YES (v. strong)	7	YES (strong)
	3	4 (**SP**, NO, BE, TUR)	5	YES (v. strong)	4	YES (moder.)

1: Bold characters indicate the leading country in each component in terms of no. of actors

according to the topic of the research papers. An additional observation is that the more productive authors tend to collaborate more and to collaborate across tracks. The central actors in the main components have all worked on more than one track. This observation could lend support to the tendency towards specialisation, although it is unclear whether the central actors possess the scarce competencies themselves or are the anchor-points between groups of specialists.

5. Conclusions, Limitations and Future Research Directions

Using a Social Network Analysis, this paper aims to explore the characteristics of the structure of the EMAC collaboration network and investigate the factors that influence the choice of collaboration partners. We found the primary factor of influence when choosing collaboration partners to be close geographical and cultural proximity, as there was a tendency for members of the EMAC community to be organised around institutions in the same or culturally close countries. This points towards EMAC being a loosely connected network of scientists with a generally introvert and moderately risk-averse collaboration culture. However, in a number of the components in recent years (i.e. 2007 and 2010), the selection criteria was a combination of close geographical/cultural proximity and a specific marketing sub-discipline, as both factors appeared to jointly influence the choice of collaboration partners, indicating a rising tendency to also prioritise scientific specialisation. Nevertheless, geographical proximity remains the main driver of collaboration. The extent to which more scientific criteria would prevail remains to be seen in forthcoming EMAC conferences.

Our study is limited in that we only present the results for four years; future research can conduct a full survey of conference proceedings to identify other trends. In addition to this, our focus was on structural characteristics; complementary research could focus more on the characteristics of central authors in the networks and triangulate this with interviews to provide more detailed knowledge of how the productive actors collaborate across tracks, as anchor-points or specialists.

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