



Networks in Hungarian leisure sports – framework for economic analysis and empirical findings

Miklós Kozma¹, Ágnes Szabó¹

¹ Corvinus University of Budapest, Institute of Business Economics, Department of Business Studies, Sport Business Research Centre, Budapest, Hungary

miklos.kozma@uni-corvinus.hu

Abstract

The aim of our research project was to develop our understanding on the role of networks in Hungarian leisure sports. Our research based on 69 in-depth interviews (31 from these were conducted in 2011 with key stakeholders in leisure sports, and the others in 2014 with experts and university students) and a quantitative online survey which was conducted in 2014 among 3374 university students out of twenty universities in Budapest. “Templates” and “Editing” qualitative analysis methods and quantitative data analysis techniques have been used. Through a large sample quantitative on-line survey we explored university students’ leisure activities, and the role personal networks could play in increasing their sporting activity. We learned that the strongest drivers for increased leisure sport activity are inner determination and the recommendation of friends and family. While team sports lose popularity, the role of networks as potential facilitators of active pastime was identified. In addition, we outlined a fundamental typology of leisure sport networks in Hungary. Key actors were identified and categorised across two dimensions describing the nature of the networks: the strength and the symmetry of relationships within the networks. Our current empirically based categorisation highlighted room for improvement related to some of the key actors. Overall, the economic and social rationale for networks in leisure sports was demonstrated through our analysis. The key outcomes of efficient networks could be better access to information, more professional operations and, perhaps most importantly, providing the much needed community for doing sports.

Keywords: Leisure sports, network theory, networks in leisure sports, sport activity motivators

INTRODUCTION

The growth of sport's economic implications brought alive the need for its economic analysis. The first publications about sports economics were issued in the USA in the 50's. In the late 60's in England the focus was more on professional sports, typically with team sports and leagues. Today, the topic of professional sports is still dominant; leisure sports do not receive comparable scholarly attention. Downward et al. (2009) drew attention to the lack of theoretical and practical publications on leisure sports in 2009. While leisure sports are becoming an increasingly important area of activity in modern societies, their economic significance has also developed. Doing sports in our leisure time generates value not only at community and individual level, but for the enterprises engaged in provide leisure sports services. Our research interest is focused on understanding the role of networks in leisure sports, either from social or from economical point of view. Furthermore, we aim to explore how thinking in networks may help leisure sports grow in popularity. In light of our literature review, most of existing literature deals with professional sports, hence our interest in leisure sports networks may fill a gap in our current understanding of sports economics.

Network Theory

In order to show the context of our scholarly interest, first we aim to provide a general overview of our current understanding of networks in sports through highlighting key points in literature about networks in general, social networks, networks in sports. Also, we give a brief summary of how Hungarians spend their leisure time and how sport activities fit in their way of life. Networks are everywhere. In our mind, in the society, in the ecosystem, in technological innovations: the brain is the network of nerve cells connected by axons, cells are networks of molecules set by biochemical reactions. Societies are networks of people connected by friendship, family and professional relations. The ecosystem, the internet, electric networks, supply chains are further examples of the existence of networks. Science treated complex networks as accidental, for more than forty years, thanks to the work of two Hungarian mathematics, Pál Erdős and Alfréd Rényi. They suggested that random networks are "democratic", i.e. most nodes of the network are characterized by approximately the same amount of contacts (Erdős – Rényi, 1959, 1960). Nodes follow a Poisson-distribution, and it is extremely rare to find nodes that are characterized by significantly more or less connections than the average. To deny this, in 1998, a search engine robot was created, which collected all outgoing connections of a web page examining how the pages are interlinked (Albert et al.,

1999). In case of random networks, most nodes have approximately the same number of links. Barabási et al. progressed our understanding of networks by explaining that in “scale-free networks” the nodes with limited connections are overrepresented (Barabási – Albert, 1999, Barabási et. al. 1999). Meanwhile, a negligible minority of nodes have a very large number of links. According to Barabási et al. (1999), communities are not developed randomly; there is a certain inner organising force, for example the same interest of people. This may be a useful frame of reference for how sports communities are formed, either as associations or even the followers of a particular club, a professional business venture. According to Harvard sociologist Stanley Milgram (1967), two people in society are typically five or six handshakes away from each other. We live in a small society. The nodes of social networks can be grouped into small clusters, marking circles of friends and acquaintances where each node is connected to other nodes (Granovetter, 1973). For leisure sports these circles of friends and acquaintances may be important. Any non-athlete could be reached if they are only 5-6 handshakes away from an "obsessed athlete", instead of being “far away” from each other. Scale-free networks are not static, but dynamic. They constantly grow, and they tend to grow in a "preferential way", rather than a "democratic way" (Barabási et. al. 1999). A node, rich in relations will rapidly increase the number of its connections, because the incoming nodes are more likely to relate to it. This means that there are "more visible", "important", "fit" hubs. Competitive fitness means, in network terms, the rate of a hub's attraction. Defining the centre of a social network is much more difficult than in the case of the Internet. Everyone has their own network of relations consisting of several communities entangled in each other through hubs.

Social networks

Homans (1984) noted that the analysis of social networks is among the four main research areas of sociology. According to the "lost communities' theory", traditional community ties broke up by the observed process of the rationalisation in the economy, the widening division of labour, industrialisation and urbanisation. Contacts within a community and the norm of solidarity will be replaced by impersonal, alienated social formations. In the case of leisure sports, the danger arose that team sports will be replaced by individual, or individualistic sports. The "lost communities' hypothesis” was refined in the 1950’s. Among more urban populations, there are communities based on personal contacts, often called "social networks" (Szántó-Tóth, n.a.). These networks can have an effect a person’s health and happiness. The history of social network analysis includes sociometric analysis, the examination of triad

relations and the theory of cognitive relationships. The aim of sociometric analysis in various small groups (for example school classes, workplaces, sports teams) is to quantitatively explore preferred interpersonal relationships, and describe social formations. A triad is interpreted as opposed to an isolated individual or a dyad connection. A third player can further strengthen as well as ruin a relationship or a hobby (doing sport). Two persons' feelings for each other may also be affected by a third party (or an object or an activity). For example, two people who have sympathy towards a third party tend to like each other too (Szántó-Tóth, n.a.). Based on the analysis of Granovetter (1973) and Blau (1977), relations between heterogeneous parties are more likely to be weak than between homogeneous ones. Furthermore, the higher the degree of heterogeneity the greater the probability for a possible bond to be weak. According to Hungarian sociologists Angelusz and Tardos (1988) macro and personal micro-networks may be seen as potential determinants of individual behaviour and opinions. According to Burt (1982) people are purposeful within limitations of social structures. Consideration of alternative actions (e.g. sports) depends to a large extent on the structural characteristics of the social environment, and on the status-role of the given individuals. In the analysis of relationships between actors of networks a range of aspects may be relevant: the content, symmetry, and intensity of the relationships, the motivation and power of participants, or the resources of actors (Achrol et al., 1983; Anderson et al., 1994; Hakansson – Snehota, 1989).

Networks in professional sports

There is a decent range of publications using network theory applied in the field of professional sports. We identified critical “milestones” in the development of the subject that formed a basis for our scholarly efforts, as explained below. Aldrich (1979) identified a number of examples for contexts allowing meaningful network analysis, including the relationship between sports associations, unions (these are the hubs of sports networks), television and radio broadcasting networks and sports institutions. Axelsson (1992) raised that network theory could be applied to the sports context. Wolfe et al. (1997) claimed that there are several network interactions among the different actors of sports, media and sponsors, as Agostini also mentioned media and sponsors in connection with network theory in his work in 1995 (cited by Wolfe et al, 1997). Wolfe prepared a case study about the power issue being a central element of networks. He examined the relationship between network actors such as corporate sponsors, media and owners in sport. He also analysed the changing balance of power in sports networks, as affected by technology, sponsors and ambush marketing, using

the case of the English Rugby Union and BSkyB in 1997. Wolfe concluded by highlighting the need for a relationship view of networks, i.e. the establishment of cooperation, commitment, and trust among the parties. Erickson-Kushner (1999) explored the relationship between network theory and the services provided by organisations arranging major sporting events. They raised sporting events as good examples of network connections and dependencies. They attempted to extend network theory to service organisations: the ability of a network participant to bring its own micro-network of connections to an event network seemed to be critical, as their ability to develop network and event-specific skills.

Leisure sports activity in Hungary

Most research claims that men, younger people, those with higher incomes, living in big cities, and the better educated do more sports in their leisure time (Polányi, 1998; Szonda Ipsos, 2003; KSH, 2006, 2010; Neulinger, 2007; Gál, 2008; Eurobarometer, 2010 and 2014; Paár, 2013; Gál 2014). Paár (2013) estimated that households with members of over 65 years of average age, compared to younger households, spend relatively little on sports. People under 24 years of age spend 7.5 times more on sports than them. The comparable ratio is 5.1 for 35-44-year-olds, 4.5 for 25-34-year-olds, 2.8 for 45-54-year-old household members. People with the highest level of education are most likely to spend on sports, the odds ratio being 3.1, compared to the group of people who are least educated. According to Gál (2008) the proportion of those who play sports, take excursions or walk on a daily basis, is only 26 percent, and it is only 13 percent of people who do so at least three times a week. Excursions and hiking were identified as the most common forms of activity; aerobics, cycling, football, running and swimming were also mentioned, in line with other researches. GfK research in 2009 claimed that cycling is the most popular sport among Hungarians (Gál, 2014), followed by football, swimming and fitness (Bacher, 2010). Considering the Central Statistical Office time-use research (2010) 19 minutes was the average time spent on walking and sports in 1999/2000. Ten years later the comparable number was only 15 minutes. According to the Eurobarometer 2010 survey, only 5 percent of the Hungarian population do sports regularly (5 times a week). The proportion of people doing sports with some regularity was 18 percent. According to the Eurobarometer 2014 survey, there has been an increase in the number of people doing sports 5 times a week (to 15 percent of the Hungarian population), while 23 percent of people did sports with some regularity in 2014. The comparable EU average was 33 percent.

Friends as motivators

There is a distinct body of literature dealing with the motivation in sports consumption. Neulinger (2007, referring to Hoffmann, 2003 and Moore, 1987) identified the following general motivating factors for doing sports: drive for success, need for company (the feeling of "being together"), supporting health and fitness, and quest for entertainment. For men, the most important motives were competing, achieving status and winning. For women, maintaining good health and fitness, managing weight and good shape were key motives, while the need for company was found to gain more importance with age (Goudas et al., 1994). In a German representative survey of 2,500 people, 68 percent of respondents reported that they could be easily persuaded by their friends to do more sports. Especially members of the younger generation reported that good company was essential for their physical activity. 82 per cent of people younger than 30 years gained the necessary motivation from their friends. The survey also showed that younger people, unlike the old, are much more susceptible to external stimuli mobilising them to exercise. According to Laki and Nyerges (1997), there are significant differences in the physical training habits of youngsters living in the capital and those living in rural areas in Hungary. While football and other ball games are dominant among rural youth, six or seven sports are popular among young people living in Budapest. Some of them are new and/or fashionable sports: aerobic, fitness, body building, cycling, jogging and swimming. According to the authors, individualisation is an important feature of modern, fashionable sports. According to Pluhár-Keresztes-Pikó (2003), the time spent with friends increases significantly as the frequency of doing sports increases. Sports have a strong positive relationship with good school performance, the mother's education, the perception of current health, future-orientation, confidence and the sporting habits of friends. Those who do sports regularly value inner values, peace of mind, health, honesty, friendship and family higher than their inactive peers. Neulinger (2007) conducted a quantitative survey among 1,000 university students, and a qualitative enquiry among 92 students, and found that peers and friends are the most important factors of motivation for doing sports. Szabó (2013) found that in addition to football, other team sports (e.g. basketball) and sports requiring two opponents (e.g. tennis, dancing) were also popular among university students. The 2014 TAMOP survey analysing a big sample (3,000 respondents) (Gál, 2014) concluded that the strongest motivating factor was health preservation, better physical performance, and recreation. Having fun, being together with friends were among the top motivators for men,

while managing weight, good shape and fighting aging proved stronger motivators for women (Gál, 2014).

METHODS

Subject

In our explorative research project we aimed to develop a preliminary understanding of the role networks play in leisure sports in Hungary. In addition, we were keen to discern how thinking in networks may help leisure sports grow in popularity, i.e. how to make more people do sports for all its social and economic benefits. We applied different modes of enquiry. We conducted qualitative and quantitative research: in-depth interviews and online survey.

Research sample and data collection

Our research based on:

- 69 in-depth interviews: 31 from these were conducted in 2011 with key stakeholders in leisure sports, and 5 interviews in 2014 with those who are familiar with leisure sports networks (“network experts”), and the other 23 interviews in 2014 with university students;
- and a quantitative online survey which was conducted in 2014 among 3374 university students out of twenty universities in Budapest.

Based on literature review, secondary analysis of 31 in-depth interviews was performed. These interviews were made for understanding the whole leisure sports industry in Hungary in 2011, asking questions about the following topics: operation of leisure sports in Hungary, value creation factors, the markets of leisure sports, the stakeholders, and their goals, roles and tasks, relationships among them, challenges, key problems. So we “re-analysed” the more than 500 pages in 2014, concentrating on the topic networks. In addition, five new interviews were made with “network experts” in 2014 with the primary questions (description and role of leisure sports networks, key players and nodes, most important motivators of the players to participate in the network, advantages of belonging to such a network) focused on identifying the relevance of network thinking in sports, and describing those networks. We selected the interviewees in the samples (in 2011 and in 2014 also) via considerations of what seemed opportune and using the snowball method (Miles-Huberman, 1994, cited by Bokor, 2000). We asked each of our interviewees to recommend people with whom it would be essential to

speak in order to write the best possible study on leisure sports and networks. If two interviewees recommended the same person we tried to get into contact with them, in most cases with the help of the person who recommended the new interviewees. In parallel, a quantitative survey on a large sample was conducted in 2014. The on-line survey of university students from Budapest was performed by Bíbor Béka, a civil initiative supporting health and environmental consciousness, in cooperation with the Sport Business Research Centre of Corvinus University of Budapest (Bíbor Béka, 2014). The questionnaire was developed as a joint effort of colleagues from Bíbor Béka and Corvinus, its key topics covering the motivation of leisure sport involvement, the drivers of selecting between sports, and the factors that could support more involvement from the diverse group of students surveyed. Validity was controlled by the test running of the questionnaire in a small test sample of 19 students, and the refinement of the questions based on the findings from qualitative interviews. Inter-coder reliability was also checked. The questionnaire was available on the www.biborbeka.hu website between 5 December 2013 and 16 January 2014. Students volunteered to fill the form they have learnt about through various channels: targeted on-line advertisement, university newsletters, and the websites and social media pages of student bodies and university sports centres. 3,374 answers were received from students of over twenty universities (public and private) in Budapest including the four major universities (Budapest University of Technology and Economics/BME, Corvinus University of Budapest/Corvinus, Eötvös Lóránd University/ELTE, Semmelweis University/SE) contributing with 500+ questionnaires filled. With regards the research population, there were 295,316 university students in the first semester of 2014/2015 in Hungary, and the four large universities with students numbering close to or over 20,000 made up approximately 50% of the total number of university students in Budapest. The on-line survey was supplemented by 23 in-depth interviews with university students in Budapest providing further insights into the thinking and feelings students related to leisure sports and networks. Based on the answers provided, students were grouped into three categories: (1) active leisure athletes, doing sport at least three times per week; (2) casual athletes doing sport once or twice per week; (3) passive students who do not do sports on any regular basis. The consideration behind this grouping of students in the original Bíbor Béka study was to allow the analysis of what makes people do sports at least 3 times a week, and how the other two groups could be stimulated or supported to become more active for all the health and social benefits of leisure sport involvement.

Data analysis

There are four methods for analysing the transcripts of interviews: 1. „Quasi statistical analysis”: counting and categorizing the words and expressions. This is an objective, systematic, quantifiable method. 2. „Templates”: analysis through certain categories and topics. These categories may expand analysing the text. The categories may stem from the existing knowledge base (priori) and the interviews’ text and analysis (posteriori). 3. „Editing”: the analyst approaches the text like an editor, seeking out meaningful topics, copying, pasting, cutting and rearranging. Glaser and Strauss’ “grounded theory” provided a good example for the editing methodology. Everything comes from the text. It is necessary to continue analysing and interpreting up until the point where the text does not contribute anything new to the given category. It is essential to acknowledge preconceptions and describe them explicitly. 4. „Immersion/crystallization”: total immersion in the topic and not only theoretically, and the researcher observes everything in connection with the topic. We used the “Templates” and “Editing” qualitative analysis methods.

In the quantitative part SPSS15 was used to analyse the 3374 questionnaires. Descriptive statistics were carried out. Close to 60% of university students are female, which was reflected in the research sample as well. 62% of the 3,374 students who responded to the questionnaire were women, 38% were men. The majority of them were born between 1988 and 1994; hence they were 20-26 years old. 34% of respondents lived in Budapest, and additional 12% lived in the agglomeration of the capital city.

RESULTS

Our empirical investigation uncovered the general context of students’ leisure sport activity, their primary motives, and reasons for their related decisions. Throughout the analysis we aimed at identifying the role of networks in their activities.

Leisure time activities of students

Based on our 2014 survey results, Budapest students spend most of their leisure time with activities they can do at home, i.e. involving no real physical activity. Among girls, for passive students, using the Internet (80%), meeting friends (69%), listening to music (48%), reading (43%) and watching TV or video (42%) were the top five leisure activities. For casual athletes doing sports could get to position #5 with 45% of respondents mentioning sports as one of their top leisure activity. Responses from boys were similar related to all activities with

sports receiving somewhat higher scores (56% for casual athletes).

Key motives for different sports

Team sports proved to be less popular overall than individual sports. This is understood to be mostly due to difficulties in organising a larger number of people for regular leisure activities with modern entertainment opportunities abound. Also, key motivational factors for selecting sports are supporting health, improving physical performance and good shape, all of which are more associated with individual sports like running, cycling, swimming (56% of respondents linked each of these sports with direct health benefits) or fitness (55%), rather than with team sports like football (50%) or basketball (33%). Characteristically, when it comes to spending time with friends as a motivation for doing sports, it was football that scored the highest (46% of respondents linked playing football with spending time with friends); twice as high score as any other sport. Gaining new friends is less typical a motive for doing sports; still, it was a team sport, volleyball, that scored highest on that aspect (7%).

How students choose leisure sports

Students seem to be casual in their selection of sports for their leisure activity. 68% of respondents were relaxed when making their choice to try something new, and did follow-up by regular activity if they liked what they experienced. Practical aspects, like physical proximity of sports facilities scored also high (45%). Potential network impact is revealed by answers denoting the effect of recommendations by friends and family as factors of decision. The overall score of that factor was 37% with relatively little variance across different sports. There were but two sports that scored much higher from that aspect: swimming (48%) and volleyball (49%).

What could be done to stimulate sport activity

When providing answers on what should change to instil more intensive sporting activity among university students, respondents opined strongly about the need for inner determination as the strongest factor. 70% of passive students noted that as a potentially decisive factor. Interestingly, the second highest score was achieved by the need for friends joining one's efforts to do sports in leisure time. 40% of passive students would need accompanying support from friends for them to take the necessary first step for a healthier, more active life. Already active students were naturally more relaxed on this issue as they are

already quite involved in a lot of physical activities.

Actors and characteristics of networks in leisure sports

Analysing our in-depth interviews, we embarked on “mapping” the potential actors in leisure sports in Hungary. Also, we examined the symmetry of relationships, their intensity and stability among the actors of the given network. The typology shown in the table highlights the potential role actors may play in running efficient networks in leisure sports.

Table 1. Typology of leisure sports networks

	Stable, permanent, intensive relationship	Less stable, non-permanent or less intensive relationship
Symmetric relationship	Employer cups, competitions Running Ambassador Programme	Hungarian Sports Science Society's committees and programmes
Asymmetric relationship	Different programmes for making leisure sports more popular (Coca-Cola Awakening Programme, Sport as Medicine Programme, Programmes of Event Organisers)	Leisure sports associations, unions and members Leisure sports sponsors Leisure sports event networks

Source: based on Szabó, 2012, elaborated by the authors

Key words often used by interviewees in their answers describing networks were: link, connect, join forces, interact, cooperate, pull, motivate, inform, communicate, organise. The “hub”, the most important actor of a sports network is usually a sport enthusiast, who often used to be a professional athlete, or/and a powerful organiser with a wide range of connections in the field of sports. The adjectives which the interviewees used most often to describe that person were: enthusiastic, determined, committed, expert, skilful, powerful, well-known, accepted, recognised, and trustful. Everybody agreed on that fact that a person who is a “great, sports loving character” can build a network and can attract many people, because everybody wants to feel that enthusiasm. Characteristically, the “feelings we feel together” while doing sports are more valuable than doing the same sport on an individual basis. Community builds commitment in the psyche. The most important advantages conceived related to networks in leisure sports were the opportunity to build relationships, get answers to questions quickly or access to useful information. The organisation of leisure programmes and events could also be enhanced through efficient use of networks. The

learning opportunity networks may provide could lead to more professional and efficient operations and eventually higher bargaining power for the given community. Last but not least, the motivating power of networks was mentioned, in line with our survey findings referred above.

DISCUSSION

Our objective of developing our understanding on the role of networks in Hungarian leisure sports addresses a gap in existing economic literature of sports. Through a large sample quantitative on-line survey we explored university students' leisure activities, and the role personal networks could play in increasing their sporting activity. This was supported by the analysis of 69 interviews with key stakeholders in leisure sport, "network experts" and university students. From a network analysis point of view the findings of leisure activities underline the dominance of individual activities in students' leisure time, where doing sports is one of the options involving meeting other people and developing or maintaining a network. Our findings suggest a balanced view on networks' role in leisure sports, as team sports seem to be losing ground in students' life, potentially because of insufficient support from their personal network of leisure partners. Alternatively, their personal networks may transpire through other activities, i.e. on-line relationship building, requiring less of physical presence. Questions on whether these are sustainable patterns are quite open. From our interviews we learned that volleyball seems to have a strong community base at a number of universities in Budapest. We learned that the strongest drivers for increased leisure sport activity are inner determination and the recommendation of friends and family. While team sports lose popularity, the role of networks as potential facilitators of active pastime was identified. Even individual sports bring more excitement when done in good company. In addition, with the help of the interviews we outlined a fundamental typology of leisure sport networks in Hungary. Key actors were identified and categorised across two dimensions describing the nature of the networks: the strength and the symmetry of relationships within the networks. In case of symmetric relationships both the management and the members of the network are mutually receiving benefits and rely on each other. Hence, these networks are a potentially stronger basis for long term relationships. Leisure sport associations, for example, are probably unintentionally located in the weakest section of the matrix. Their role could be strengthened by developing more symmetric relationships with their members, and by generally building stronger personal relationships among members. According to the interviewees network theory seems relevant in leisure sports. The most frequent answers,

ideas were related to self-organised sport communities. There seemed a link with doing sports together, regardless of whether it is the case of more formal sport clubs (karate, judo, yoga), or dance schools, leisure events, trainings or pastime programmes. A small running community or an employer's sports initiative could be the basis for a network, or the first step towards a network to be developed. An enthusiastic person could act as a "hub" in the network. Our current empirically based categorisation highlighted room for improvement related to some of the key actors, like leisure sports associations and unions. Overall, the economic and social rationale for networks in leisure sports was demonstrated through our analysis. The key outcomes of efficient networks could be better access to information, more professional operations and, perhaps most importantly, providing the much needed community for doing sports.

CONCLUSIONS

The implications of our study are related to policy making trying to stimulate more leisure sport activity in modern society, as well as business ventures willing to address valid consumer needs in a developing market. Furthermore, through the application of network theory in the complex field of leisure sports may provide a framework for future analytical studies of particular topics including motivation mechanisms, organisational processes or social impact.

References

- Achrol, R.S., Reve, T., Stern, L.W. (1983). The environment of marketing channel dyads: a framework for comparative analysis. *Journal of Marketing*, 47, 55-67.
- Anderson, J.C., Hakansson, H., Johanson, J. (1994). Dyadic business relationships within a business network context. *Journal of Marketing*, 58, October, 1-15.
- Albert, R., Jeong, H. , Barabasi, A.L. (1999). Diameter of the World Wide Web. *Nature*. 401, 130–131.
- Aldrich, H.E. (1979). *Organisations and Environments*. NJ: Prentice-Hall, Engelwood Cliffs
- Angelusz, R., Tardos, R. (1988). A magyarországi kapcsolathálózatok néhány sajátossága. Alapadatok és összefüggések a kulturális-interakciós rétegződésvizsgálat első eredményeiből. *Szociológia* 1988, 185-204.
- Axelsson, B. (1992). Corporate strategy models and networks: Divergent perspectives, in: Axelsson, B., Easton, G. (eds): *Industrial Networks: A New View of Reality*. London: Routledge
- Bacher, J. (2010). *Talpra, magyar! Számokban a sportfogyasztásról*. Gfk Hungária, 2010.03.03.
- Barabási,A.L., Albert, R., Jeong, H. (1999). *Physica A*. 272, 173

- Barabási, A.L., Albert, R. (1999). Emergence of Scaling in Random Networks. *Science*, 286, 509–512.
- Bíbor Béka (2014). *Öröm vagy küzdelem. (Ön)kritikus egyetemisták szabadidős sportolása Budapesten*. www.biborbeka.hu/orom-vagy-kuzdelem. Accessed 12 May 2015.
- Blau, P. M. (1977). A Macrosociological Theory of Social Structure. *American Journal of Sociology*, 83(1.), 26-54.
- Bokor, A. (2000). *Szervezeti kultúra és tudásintegráció: A termékfejlesztés problémája*. Doktori (PhD) értekezés, Budapest: BKAE
- Burt, R. S. (1982). *Toward a Structural Theory of Action. Network Models of Social Structure*. New York-London
- Downward, P., Dawson, A., Dejonghe, T. (2009). *Sports Economics. Theory, evidence and policy*. China: Elsevier
- Előzetes adatok. A sportolási szokások Magyarországon 2003-ban c. vizsgálatból. Szonda Ipsos
- Erdős, P., Rényi, A. (1959). *Publicationes Mathematicae*, 6, 290.
- Erdős, P., Rényi, A. (1960). *Publications of the Mathematical Institute of the Hungarian Academy of Sciences*, 5, 17
- Erickson, G.S., Kushner, R.J. (1999). Public event networks: an application of marketing theory to sporting events. *European Journal of Marketing*, 33, 3./4.
- Eurobarometer 2010: *Sport and physical activity*: http://ec.europa.eu/public_opinion/archives/ebs/ebs34_en.pdf
Accessed 12 May 2015
- Eurobarometer 2014: *Sport and physical activity*: http://ec.europa.eu/public_opinion/archives/ebs/ebs12_en.pdf
Accessed 12 May 2015
- Gál, A. (2008). A magyar lakosság egészségtudatossága és szabadidő-sportolási szokásai. In: Földesiné, Sz.Gy., Gál, A., Dóczi, T. (szerk.) *Társadalmi riport a sportról 2008*. Budapest: OTM-MSTT, 41-89.
- Gál, A. (2014). „Innovatív és kreatív kommunikációs, média- és marketing tartalmak az egészségfejlesztést szolgáló fizikai aktivitás fokozásának szolgálatában” TÁMOP tanulmány, Budapest
- Goudas, M., Biddle, S., Fox, K. (1994). Achievement goal orientations and intrinsic motivation in physical fitness testing with children. *Pediatric Exercise Science*, 6, 159–167.
- Granovetter, Mark S. (1973). *American Journal of Sociology*, 78, 1360.
- Hakansson, H., Snehota, I. (1989). No business is an island: the network concept of business strategy. *Scandinavian Journal of Management*, 5(3), 187-200.
- Laki, L., Nyerges, M. (1997). A budapesti és a falusi fiatalok sportolása. *Sporttudomány*, 1999/3., 3-11.
- Milgram, S. (1967). *Psychology Today*, 1, 60.
- Neulinger, Á. (2007). *Folyamatos megerősítést igénylő tanult fogyasztás*. Ph.D. értekezés, Budapest: BKAE
- Paár, D. (2013). *A magyar háztartások sportfogyasztásának gazdasági szempontú vizsgálata*. Ph.D. értekezés, Sopron: Nyugat-Magyarországi Egyetem

- Pluhár, Zs., Keresztes N., Pikó B. (2003). Ép testben ép lélek. Középiskolások értékrendje fizikai aktivitásuk tükrében. *Magyar Sporttudományi Szemle*. 2003/2, 29-33.
- Polányi, G. (1998). A sportolás és a testmozgás társadalmi összefüggései. In.: *Társadalmitény-kép* (szerk.: Szívós, P, Tóth, I.Gy.). Budapest: TÁRKI
- Szabó, Á. (2012). *A magyar szabadidősport működésének vizsgálata. Piacok, értékteremtés, feladatok a szabadidősportban*. PhD-értekezés. Budapest: Budapesti Corvinus Egyetem, Gazdálkodástudományi Doktori Iskola
- Szabó, Á. (2013). *Mi történt 2004 és 2010 között a budapesti egyetemisták szabadidősport-fogyasztásában?* BCE Műhelytanulmány. Budapest: Vállalatgazdaságtan Intézet, http://edok.lib.uni-corvinus.hu/478/1/Szabo_154.p Accessed 12 May 2015
- Szántó, Tóth (na). *A társadalmi hálózatok elemzése*, kézirat, Budapest
- Wolfe, R., Meenaghan, T., O'Sullivan, P. (1997). Sport, Media and Sponsor: the Shifting Balance of Power in the Sports Network. *Irish Marketing Review*. 10(2), <http://arrow.dit.ie/buschmarart> Accessed 12 May 2015