LEASECON 2020
International Conference «Land Economy and Rural Studies Essentials»

NETWORK APPROACH TO MANAGING THE REGION'S EDUCATION

Zhargalma D. Tsybikdorzhieva (a)*, Marina M. Dambueva (b), Oyuna V. Takhanova (c),
Vladimir Y. Abgaldaev (d), Boris S. Shapkhaev (e)
*Corresponding author

(a) East Siberia State University for Technology and Management, Ulan-Ude, Russia, dorzh99@gmail.com
(b) East Siberia State University for Technology and Management, Ulan-Ude, Russia
(c) East Siberia State University for Technology and Management, Ulan-Ude, Russia
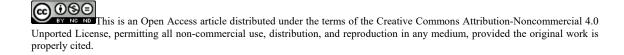(d) East Siberia State University for Technology and Management, Ulan-Ude, Russia
(e) East Siberia State University for Technology and Management, Ulan-Ude, Russia

Abstract

Collaboration between different network actors is crucial for regional development. Stability of networks, distribution of power among actors within the network, adaptation of actors to the changing environment, and network effectiveness are important issues of network theory. We demonstrate how these ties relate to each other and which ones are crucial for collaboration in a government-funded collaborative network in the educational sphere in the Republic of Buryatia. Our analysis of two experiences in education shows that a central organisation in a small network may help to solve the problem by coordinating other organisations and freeing others from managing relationships. Moreover, centralised integration might facilitate the power distribution among actors and contribute to more network effectiveness. In our two examples, networks had missions of both decision-making and implementation. Central organisations could not make all decisions or impose decisions on other organisations. Therefore, a collegial governing body may help to improve the legitimacy of decision-making and the effectiveness of implementing decisions.

Keywords: Educational network, network interaction, networking experience

1. Introduction

Most modern global programmes and development strategies of countries and regions are based on the implementation of the principles of the concept of sustainable development, which combines a high degree of order and flexibility in the system (Pozhidaev, 2017). According to Mikhailova (2010), modern politics is under serious pressure from internal and external factors that encourage governments to adopt new programmes for socio-economic development.

The main goals of sustainable development in the Republic of Buryatia are the creation of social infrastructure to ensure the implementation of new investment projects, improving the quality and standard of living of the population, developing human capital, and increasing the number of labour resources in Buryatia.

Also, government bodies are experimenting with new management methods that can lead to changes in the architecture of the state. The new model of public administration should provide a high degree of state adaptation in the face of uncertainty and the need to solve complex problems. Considering the strategic directions of the socio-economic development of the Republic and the need of the economy for personnel and educational resources, a mechanism is needed for a quick response from the vocational education system to the needs and trends of the region's economic development. An adequate response to these challenges requires the state not only to invest resources, but also to search for new managerial models that meet the expectations of state institutions, as well as non-state actors who have become full partners of the state in solving key tasks for it.

The formation of a network for a common communication space, which involves a wide range of organisations, can be considered as an effective strategy for uniting interested parties. Their focussed professional specialised view of the problem can make an invaluable contribution to the general discussion and search for strategies for solving the problem. Network interaction requires government departments to provide the interaction infrastructure since the success of a network is determined primarily by the strength of the links between the participants (Baggio & Sheresheva, 2014).

Thus, the necessity for a targeted design of network structures with the participation of non-state actors is due to the need to optimise public administration, to purposefully develop the potential and characteristics of each region, and the need for the region to attract certain resource flows on a partnership basis.

2. Problem Statement

A growing number of scientists and practitioners consider networks as an important form of multi-organisational governance and emphasise that strong and weak social ties between organisations can significantly influence organisational actions and outcomes (Agranoff & McGuire, 2003, 2007; Borgatti et al., 2009; Meier & O'Toole, 2003; Provan & Kenis, 2008; Rhodes, 2007). Network interaction can be considered as the most relevant form of organisational interaction to achieve the goals. The advantages of network coordination in public and private sectors are evident. They include a change from a clumsy hierarchical structure to flexible horizontal relations characterised by equality, mutual interest of participants in each other, joint adoption and implementation of decisions, increased capacity to plan for

and address complex problems, more efficient use of resources, and better services for clients and customers (Brass et al., 2004; Isett et al., 2011; Klijn et al., 2010; Provan et al., 2007; Provan & Lemaire, 2012). Active implementation of the network approach in governance is taking place as a social management technology. The main reasons for this are the fragmentation of social and political life and the lack of resources to solve complex problems (Mikhailova, 2010). The implementation of this process occurs, inter alia, through the assimilation and adaptation of the experience of the network interaction of commercial organisations. Thus, the relevance of the analysis of this activity in terms of the possibilities of its application in public administration is increasing.

3. Research Questions

We will examine three basic operating questions related to network management. First, we will raise the issue of power in networks: how does power come into play, how power is distributed among network participants and how the network decisions are made. Second, we will consider an issue of network stability and the adaptation of organisations to a new network environment. Third, we will investigate the issue of network results and network effectiveness.

4. Purpose of the Study

Our goal is to gain a complete picture of social connections and relationships in organisational networks supported by state authorities as a new and effective way to manage the education sector in a particular region. All in all, our analysis sheds light on how networks contribute to education management.

5. Research Methods

Since the focus here is on the interactions that involve public organisations, we seek to organise the state of the field on the management of public networks by reviewing a wide range of the policy and management literature, as well as by analysing contemporary inter-organisational relations and extant empirical experiences.

6. Findings

In order to answer the research questions, we will consider two examples of the implementation of network interaction within the framework of regional development. These two examples are related to the field of education. The need to take significant managerial measures becomes more obvious every year, since educational results are characterised by a delayed effect. It means that the existing instability of the environment will inevitably lead to a decrease in the quality of education in the near future. Network interaction is considered in these cases as an opportunity to ensure high quality education in accordance with the changing needs of the population.

The federal subsidy funds greatly facilitated network management in these two examples. Financial support for network activities ensured structural stability and rapid adaptation of network

organisations to the changing environment. The federal subsidy made it possible to avoid unstable environments, which primarily threaten the flow of resources to all network participants, impede collaboration between them, compromise their ability to fulfil their respective service or management responsibilities, and may create uncertainty and disrupt existing communication channels or collaborative relationships (Provan & Milward, 1995).

6.1. Networking experience in the field of secondary vocational education

Regional executive authorities, local authorities, public associations of employers, and entrepreneurs of the Republic of Buryatia are interested in delivering vocational guidance in the educational institutions of the Republic on working professions and specialities, and in employing graduates of vocational educational institutions.

To this end, it was decided to establish a Centre for Advanced Training in the fields of mechanical engineering and transport based at the Buryat Industrial College. The federal subsidy funds made it possible to create and equip the centre with the necessary equipment for the implementation of tasks. To implement programmes of advanced vocational training, including vocational guidance, accelerated vocational training, retraining, advanced training for all categories of citizens in the most popular, new, and promising professions and competencies at the level of relevant international standards and practices, including World Skills Standards, the centre organised network interaction between regional authorities, the business community, industrial enterprises, and secondary professional institutions.

The roles in this network interaction are clearly distributed. The centre acts as the coordinator of the collegial governing body of the regional network for training and professional education. As the network is not dense the coordination council including representatives of all network actors, decided to choose central organisation so as to better coordinate other organisations to achieve network goals. According to some authors, centralisation is more favourable to network effectiveness (Provan & Milward, 1995; Raab et al., 2013; Wang, 2015). Despite the fact that, in a dense network, member organisations are closely related to each other and thus have a better chance of collaboration, centralised integration is more likely to succeed.

The centre is assigned the task of monitoring and forecasting the demand for workers (including professional competencies) in the Republic of Buryatia. It organises the implementation of training programmes for retraining and advanced training of citizens according to the list of competencies of advanced vocational training. It also provides vocational guidance for students in comprehensive schools in the Republic, and conducts state final certification of students in educational programmes of secondary vocational education using the demonstration exam mechanism in accordance with World Skills Standards.

The Ministry of Education and Science provides organisational, methodological, and regulatory support for the centre and monitors the implementation of education legislation.

The role of the Ministry of Economy of the Republic is to approve the list of competencies of advanced professional training, and to identify the needs of organisations in terms of professional personnel.

The Ministry of Industry and Trade of the Republic and the Ministry for the Development of Transport, Energy, and Road Facilities of the Republic formulate orders for advanced training programmes focussed on the development of engineering and transport industries, and assist in their promotion.

The Employment Centre is entrusted with the role of concluding contracts for the vocational training and retraining of the workers who have been made redundant, and for the accelerated vocational training of workers at risk of dismissal, or part-time workers.

The business community performs a number of functions including (a) providing data on the need for personnel, (b) coordinating the requirements for graduate qualifications, (c) issuing orders for advanced training programmes focussed on the specifics of a particular industry, (d) coordinating educational programmes for vocational modules for secondary vocational education, students of comprehensive schools, citizens of pre-retirement age, and (e) participating in the final certification. It also takes part in the employment of graduates and organises outsourcing of advanced training and retraining of existing personnel.

The network created stimulates the growth of productivity of state institutions through joint focussed activities to solve common problems and facilitates the adaptation of network participants to new operating conditions, and the use of negotiation and consensus interaction procedures. In the best way this network establishes horizontal coordination between autonomous organisations and improves the quality of decisions both in implementation and discussion, in which a wide range of interested groups participate. This network provides a high level of public policy development and implementation due to the understanding by the participants of the strategic benefits of joint action.

For the network, of fundamental importance is not only the realisation of a common goal, cohesion, and stability of relations between participants, but also the achievement of the benefits of joint activities by each actor, and the understanding of the benefits that participation in the network provides. The advantages for the actors of this network are the ability to increase legitimacy, acquire resources for implementing advanced training programmes, and the reduction of the costs of its implementation.

6.2. Networking experience in the field of secondary education

In order to bridge the existing gaps in the quality of education between the constituent entities of the Russian Federation, municipalities, and schools, and provide the population with guarantees of affordable and high-quality education, management institutions are being transformed in the general education system. We are talking about the development and implementation of effective regional models of education management, regardless of municipal binding. Currently, there is a restriction on the ability of children living in the territory of one municipality to use the resources of educational organisations located in the territory of another municipality due to closed municipal borders, which reduces the availability of quality education. Erasing borders between municipalities will make it possible to use the material and technical base more efficiently, create network structures, and implement network projects between schools in one region.

One such example is the experience of networking among educational organisations implemented at school N32 of Ulan-Ude. This school was prepared as a platform for the implementation of a number

of projects aimed at improving the quality of education and developing the school in an innovative format.

The government body represented by the Ministry of Education, acted as the coordinator of this network, which consisted of several secondary schools, a technical university, and secondary professional institutions of the republic, as well as institutions of additional education, all of which were involved in network interaction. When creating networks, diversity of resources is of obvious importance to organisations and inter-organisational networks. According to Wang (2015), resources in the form of funding and expertise enable network members to fulfil their responsibilities, coordinate action, and collaborate with each other in service provision.

Network interaction was implemented in the form of a network of teenage schools in three areas namely 'School of Engineering Culture', 'Network Practices of Creative Thinking', and 'Ecology of the Educational Space' (working with mobile digital laboratory LabDisk), in which eight teams participated: five teams from the city, and three teams represented rural areas of the Republic. Team members modelled the work of the engineering park — from designing a scheme and justification, to drawing up a warehouse application to obtain the necessary materials. The proposed form of work was aimed at attracting young people to classes in scientific and technical creativity, in order to identify and support children inclined to study the hard sciences and technical modelling, while providing further professional orientation in the field of high technology. The result of solving the problem was the presentation of the Unique Training Centre.

Summing up the work of the educational platform, the expert group came to the conclusion that 'activity diving' involves: changing the learning mode, the type of educational interaction, forms of content, and assessing the achievements and competencies of students, as well as the approach to setting the educational task. Networking consolidated the activities of several participants and demonstrated a more flexible and innovative approach to managing the educational process. This experience of networking has provoked questions on: the revision of per capita financing, the revision of wages for hours in network training, and the development and adoption of regulations on the licensing of network organisations.

This experience of network interaction has demonstrated all aspects of our research. Firstly, correct distribution of power and centralised integration made it possible to achieve stability and a quick adaptation of key actors to new challenges. Secondly, collegial decision-making and a clear distribution of tasks and competencies among the key actors made it possible to avoid making any changes to the distribution of interests and resources between network members. Obviously such changes are very likely to threaten the interests of some network members, reduce mutual trust, and create conflicts (Wang, 2015). Thirdly, the stability and adaptability of the network participants to a changing environment has affected the effectiveness of network management.

7. Conclusion

The availability of sufficient resources, well-developed cooperation, and the stability achieved in these two examples were able to help networks make the most efficient use of resources. The adequacy of human and social capital has made organisational efforts effective. The Centre for Advanced Training

provided the opportunity to remove many of the contradictions that exist in practice and organise networking on the development of the labour market with a clear definition of tasks and ways to solve them. This model is an infrastructure uniting – through their interaction – educational institutions, enterprises of the engineering and transport sectors, and regional executive bodies.

The network school solves several problems: firstly, the practice of working in a network format, when several schools are simultaneously included in the educational process and they interact with each other. Such a work format can solve the problem of the shortage of teachers in schools in rural areas. Secondly, the network school necessitates the use of distance and digital technologies in education. Thirdly, meta-subject teaching with elements of project activities allows the teacher to work at the junction of scientific disciplines, to develop a holistic vision of the world, and the skills to creatively and comprehensively solve practical problems among schoolchildren.

Thus, these experiences suggest that the use of network structures in the practice of public administration requires unconventional thinking and behaviour for the procedural form of management. In turn, this becomes possible if the goal of creating a network structure is not a narrow administrative task, but an important public good which reflects the ability of the education system to respond to external influences, while maintaining control and functional balance when there are changing external conditions.

References

Agranoff, R., & McGuire, M. (2003). Inside the Matrix: Integrating the paradigms of intergovernmental and network management. *International Journal of Public Administration*, *26*, 1401–1422. https://doi.org/10.1081/PAD-120024403

Agranoff, R., & McGuire, M. (2007). Big questions in public network management research. *Journal of Public Administration Research and Theory*, *11*(3), 295–326. https://doi.org/10.1093/oxfordjournalsjpart.a003504

Baggio, R., & Sheresheva, M. U. (2014). The network approach in economics and management: Interdisciplinary character. *Bulletin of Moscow University. Ser. 6 Economics, 2*, 3–21

Borgatti, S. P., Mehra, A., Brass, D. J., & Labianca, G. (2009). Network analysis in the social sciences. *Science*, *323*, 892–895. https://doi.org/10.1126/science.1165821

Brass, D. J., Galaskiewicz, J., Greve, H. R., & Tsai, W. (2004). Taking stock of networks and organizations: A multilevel perspective. *The Academy of Management Journal*, *47*(6), 795–817. https://doi.org/10.5465/20159624

Isett, K. R., Mergel, I. A., LeRoux, K., Mischen, P. A. R., & Rethemeyer, K. (2011). Networks in public administration scholarship: Understanding where we are and where we need to go. *Journal of Public Administration Research and Theory*, *21*, i157–i173. https://doi.org/10.1093/jopart/muq061

Klijn, E. H., Steijn, B., & Edelenbos, J. (2010). The impact of network management on outcomes in governance networks. *Public Administration*, *88*(4), 1063–1082. https://doi.org/10.1111/j.1467-9299.2010.01826.x

Meier, K. J., & O'Toole, L. J. (2003). Public management and educational performance: The impact of managerial networking. *Public Administration Review*, *63*(6), 689–699. https://doi.org/10.1111/1540-6210.00332

Mikhailova, O. V. (2010). Network mechanisms of formation of state policy: The problem of matching the values of democracy. *The Power*, *11*, 22–25

Pozhidaev, R. G. (2017). Network approach to regional management. *Herald of Voronezh State University. Economy and Management Series*, *2*, 71–75

Provan, K. G., & Kenis, V. (2008). Modes of network governance: Structure, management, and effectiveness. *Journal of Public Administration Research and Theory, 18*, 229–252. https://doi.org/10.1093/jopart/mum015

Provan, K. G., & Lemaire, R. H. (2012). Core concepts and key ideas for understanding public sector organizational networks: Using research to inform scholarship and practice. *Public Administration Review*, *72*(5), 638–648. https://doi.org/10.1111/j.1540-6210.2012.02595.x

Provan, K. G., & Milward, V. (1995). A preliminary theory of interorganizational network effectiveness: A comparative study of four community mental health systems. *Administrative Science Quarterly, 40*, 1–33. https://doi.org/10.2307/2393698

Provan, K. G., Fish, A., & Sydow, J. (2007). Interorganizational networks at the network level: A review of the empirical literature on whole networks. *Journal of Management*, *33*(3), 479–516. https://doi.org/10.1177/0149206307302554

Raab, J., Mannak, R. S., & Cambré, B. (2013). Combining structure, governance, and context: A configurational approach to network effectiveness. *Journal of Public Administration Research and Theory*, *25*(2), 479–511. https://doi.org/10.1093/jopart/mut039

Rhodes, R. A. W. (2007). Understanding governance: Ten years on. *Organization Studies*, *28*(8), 1243–1264. https://doi.org/10.1177/0170840607076586

Wang, W. (2015). Exploring the determinants of network effectiveness: The case of neighbourhood governance networks in Beijing. *Journal of Public Administration Research and Theory*, *25*(2), 479–511. https://doi.org/10.1093/jopart/muv017