



Support Mechanisms and Value Creation in Multi-Stakeholder Networks for Digital Innovation in Education: A Cross-Country Study

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Abstract. This study investigates the impact of support mechanisms on enhancing the participation of network members in diverse multi-stakeholder networks with a primary focus on digital innovation in education. The study was conducted in collaboration with national networks from partner countries of a H2020 project, which aims to accelerate digital innovation in and across schools. Twenty-six international stakeholders from various backgrounds, including teachers, school leaders, mentors, educational technologists, policy makers, and a researcher were interviewed (n = 14) or surveyed (n = 12). Using Wenger et al.'s [1] value creation framework, the study identified participants' perceptions of various activities, interactions, and structures that enable network members to generate value. The results indicated overarching values for members to be associated with capacity building opportunities, joint projects, opportunities for expanding impact through recognized expertise, access to personalized support and guidance, and knowledge sharing platforms.

Keywords: multi-stakeholder networks · digital innovation · support mechanisms · value creation

1 Introduction

Recently the concept of networks as learning communities has gained traction as a promising catalyst for innovation in the education sector. Characterized by their flexibility, lack of boundaries, and focus on members' interests, these networks present platforms for transformative change [2]. While the term "networks" often refers to connections among people, terms such as "learning communities" or "communities of practice" emphasize collaborative learning partnerships and dedication to a shared domain [1]. In this study, we adopt the term "networks as learning communities" and use the shorthand "network" to underscore the interconnected nature of these two elements in the networks under examination. Number of networks have been established in Europe to promote innovation within and across schools by connecting schools, research institutes, policy makers, and other public and private institutions. Some recent examples include the SALL ('Schools as Living Labs') project [3], the OSOS ('Open Schools for Open Societies') project [4], and the Hypatia project [5].

The success of these networks hinges on members deriving value from their involvement; otherwise, they may disengage, leading to network disintegration [1]. Value creation stems from various activities and interactions, yielding short or long-term benefits for participants, such as problem-solving, skill development, social connections, and access to resources. Wenger et al.'s value creation framework [1] examines the value generated by individuals through their involvement in social learning activities, consisting of five cycles revealing how network participation contributes to value creation [1]. Assessing value creation should link specific activities and interactions to desired outcomes. In this study, we refer to these activities and interactions as network-embedded support mechanisms, which may include, for example, professional development opportunities and knowledge-sharing platforms.

This study aimed to investigate the support mechanisms among members of national stakeholder networks, given their critical importance for network success. We sought to contribute to the growing knowledge on the importance of support mechanisms and value creation in implementing educational innovation initiatives in multi-stakeholder networks. While not establishing a causal link between support mechanisms and value creation, our findings offer insights for the broader education community focused on digital innovation and inform future endeavours. We collaborated with national networks from partner countries of the iHub4Schools project that aims to accelerate digital innovation in and across schools. The study focused on the research question: Which support mechanisms, including knowledge sharing, collaboration, and external expertise, do network members perceive as crucial for generating value from their participation in professional multi-stakeholder networks?

2 Method

In total, 26 members of five national stakeholder networks in each pilot country were recruited to participate in the study. Participants were recruited by collaborators in partner countries through their professional networks, employing a convenience sampling method. Nine stakeholders from Estonia, five from Lithuania, seven from Finland, four from Georgia, and one from Norway participated in the study.

We developed a structured interview protocol based on the work of Wenger et al. [1] with the aim to explore the perceived values of stakeholder networks for members as well as significant activities, interactions, and structures within the network. Additionally, we designed an open-question survey to gather the same information, which was administered in Finland, Norway, and Georgia. Both the interview and survey questions were translated into the native language of the country. The interviews were conducted online, and recorded, and the same approach was used for survey responses. Collaborators translated quotes that were relevant to the research question from interviews and surveys back into English with the help of experienced native-speaker researchers to reduce the potential bias introduced in the process.

We used a combination of deductive and inductive approaches in the data analysis. We developed a codebook based on the Value Creation Framework [1]. It included codes for values related to the cycles of immediate and potential value creation (e.g., access to new knowledge and information sources), as well as support mechanisms grounded in the authors' knowledge of practices in networks, such as training and knowledge sharing platforms. The first two authors independently coded the data, incorporating unanticipated values and support mechanisms into the codebook as needed. Following this, a tentative thematic analysis was conducted to identify the most significant support mechanisms that emerged from the data. Preliminary findings were shared with collaborators to validate and revise our findings accordingly.

3 Preliminary Findings and Discussion

Our preliminary analysis identified five support mechanisms that contribute to the generation of both immediate and potential values in these networks: capacity building opportunities, joint projects, opportunities for expanding impact through recognized expertise, access to personalized support and knowledge sharing platforms. The abbreviations have been used to indicate the members' networks in the quotes: E (Estonia), F (Finland), G (Georgia), L (Lithuania), N (Norway). It is important to note that no causal relationship is implied between the support mechanisms identified and value creation, due to the methodological limitations of our investigation.

3.1 Capacity Building Opportunities

Many network members stressed the significance of participating in events such as trainings, seminars, workshops, regular meetings, conferences, seasonal schools, and networking gatherings. The following quotes from two networks illustrate the diverse benefits of participating in various events: *Through these additional trainings and meetings, I aim to improve my job performance by bringing new skills to my school. Teaching can often be monotonous and numbing, so these events serve as a lifeline amid daily routines. It's refreshing to meet like-minded individuals and exchange updates from various schools (Teacher 3, F); The training received through the program, as well as seminars and other events involving mentor networks, has been incredibly useful for sharing experiences and acquiring tips and tricks (Mentor 1, E).*

These insights reveal the value derived from participating in various events, including improved knowledge, skills and the opportunity to share experiences with professionals. Furthermore, members emphasized the importance of certain characteristics that enhance the value of capacity building events, such as in-person interaction and diverse expertise and backgrounds. For instance, the following quotes emphasize the preference for a diverse pool of stakeholders joining these events: *Different people, different schools - I observed others using technology. I gained valuable examples from other schools, seeing how others use it, and adapted those ideas. If you stay within your own bubble, you won't progress. You may think you know everything, but when you see others, you grow... (Educational technologist 1, E).*

Most participants stressed the importance of diverse stakeholders in network events, as their presence leads to a richer learner experience, broader perspectives, and enhanced collaboration. Key aspects highlighted include a) exposure to varied practices from different schools, enabling members to implement these in their own contexts; b) interdisciplinary collaboration with experts from various levels of education, edtech companies, and municipalities; c) holistic understanding through the inclusion of developer teachers, experts, and government representatives, promoting a comprehensive grasp of the issues at hand. Additionally, members highlighted the importance of hands-on activities such as individual assignments and collective problem-solving during events. Incorporating these elements allows members to gain practical insights that directly support their everyday work. As one member shared: *Participating in training sessions and engaging with activities such as homework between training sessions have been significant events for me (School leader 2, E).* In addition to formal opportunities, the members stressed the value of creating dedicated spaces for casual networking during these events; for example: *While lectures at events were important, informal table discussions during coffee breaks were even more significant. (...) These casual interactions have helped clarify my thoughts, provide alternative solutions to problems, and allowed me to share tips or ideas on how I've addressed issues myself."* (Teacher 1, F).

Finally, the significance of practical aspects in enhancing the value derived from network members' participation in these events is evident in their responses. Participants highlighted aspects such as obtaining certifications, receiving financial support, having events scheduled during their work hours, and providing learning opportunities: *I value obtaining new knowledge and skills, as well as having certificates to validate that new knowledge. (Teacher 1, E); The financial aspect, such as receiving extra money, is valuable to me (Mentor 1, E).*

The quotes suggest that practical considerations are crucial to maximize the benefits of participation. These factors complement other key dimensions, such as in-person events, diverse stakeholder involvement, sharing and networking opportunities.

3.2 Joint Projects

While capacity building opportunities, such as workshops or conferences, were acknowledged by network members as highly valuable to their professional growth and expanding their professional network, they also pointed out that extended opportunities for collaboration can augment these experiences, leading to more meaningful learning. One

member noted the benefits of extended collaborative opportunities: *The most influential experiences for me have involved collaboration with digital pedagogy development teachers from other schools in planning and implementing various tasks. Through these interactions, I've become acquainted with teachers in almost every school in my municipality and have had the opportunity to observe diverse practices across many different schools. (Teacher 3, F).* This quote highlights the significance of extended collaboration, which goes beyond one-time events, in enhancing the depth and continuity of learning experiences. It emphasizes the importance of fostering sustainable relationships, ongoing dialogue, and a comprehensive understanding of diverse practices within multi-stakeholder networks.

3.3 Opportunities to Expand Impact Through Recognized Expertise

In national networks, gaining a reputation is vital, and many network members emphasized its importance. They stressed the significance of expertise recognition through broader impact opportunities. This recognition can occur through invited talks, collaboration, consultations, and workshops. For example: *As an expert, recognition and consultation opportunities naturally follow. You will be invited to various workshops to conduct sessions and share experiences (Educational technologist 1, E); While recognition of excellence in mentoring is not very important to me, invitations to participate in various events may serve as evidence of my expertise (Mentor 1, L).*

These quotes exemplify the importance network members place on gaining a reputation and having their expertise recognized. Such recognition, often through invitations and opportunities, not only validates their skills but also allows them to contribute meaningfully to the broader educational community. These valuable opportunities serve as crucial support mechanisms, benefiting individual members and fostering the overall development of the network. In addition to verbal praise and recognition, networks should consider implementing practical mechanisms that enable members to make a broader impact, such as pairing experienced members with newcomers or organizing regular workshops led by network members. By integrating these support mechanisms, networks can enhance the creation of member value, leading to more successful and sustainable networks.

3.4 Access to Personalized Support and Guidance

Members from national stakeholder networks also stressed the significance of personalized approaches to complement capacity building opportunities. This is particularly important for teachers who may be less tech-savvy or resistant to change. One mentor underscored the benefits of customized training and forming personal connections with teachers, stating: *I feel differently about consulting and mentoring. I think it is important to listen to people and be there for them as a person. For those who are not highly skilled or are resistant to change, training alone may not be effective. Instead, a more personalized approach through mentoring and/or consulting can be more meaningful for these individuals" (Mentor 2, E).* This perspective suggests that a one-size-fits-all approach to professional development in these networks might not be sufficient for

addressing the diverse needs and backgrounds of teachers. By incorporating personalized approaches, such as mentoring and consulting, educational stakeholders can better support teachers with varying levels of technology proficiency and openness to change.

3.5 Knowledge Sharing Platforms

Many network members noted the use of social media groups and local engagement platforms as key mechanisms for sharing information and receiving support. These tools offer benefits such as allowing members to access information at their own pace. A teacher from an Estonia network explained: *Facebook groups remain an effective and neutral platform for our generation. Information posted on the group's wall offers flexibility - if I have time today, I can check for updates; if not, I can choose not to visit the page and read the content. Additionally, we used a Messenger chat group among the teachers to discuss problems and support one another* (Teacher 1, E). In general, the participants suggested that digital channels allow network members to engage in meaningful discussions, share information, and stay connected beyond formal network activities, providing an additional layer of ongoing support.

4 Conclusion

This study aimed to investigate the support mechanisms perceived as significant in helping network members generate value from participating in different national networks, given their critical importance for network success. Our preliminary analysis identified five primary support mechanisms that contribute to the generation of value in these networks, ultimately contributing to their sustainability: capacity building opportunities, joint projects, opportunities for expanding impact through recognized expertise, access to personalized support and guidance, and knowledge sharing platforms. The insights into the support mechanisms identified here have the potential to help network members generate further value from participating in different national networks focused on digital innovation. By incorporating these mechanisms, future digital innovation initiatives can enhance collaboration, promote ongoing learning, and ultimately contribute to the sustainable growth of these networks.

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