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Journal:	<i>Journal of Professional Capital & Community</i>
Manuscript ID	JPCC-02-2020-0010.R2
Manuscript Type:	Research Paper
Keywords:	professional learning network, research learning network, distributed leadership, Professional Capital, innovation mobilisation

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Is Distributed Leadership An Effective Approach For Mobilising Professional Capital Across Professional Learning Networks? Exploring A Case From England.

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Abstract

There is currently a focus on using networks to drive school and school system improvement. To achieve such benefits, however, requires school leaders actively support the mobilisation of networked-driven innovations. One promising yet under-researched approach to mobilisation is enabling distributed leadership to flourish. To provide further insight in this area, this paper explores how the leaders involved in one Professional Learning Network (the Hampshire Research Learning Network) employed a distributed approach to mobilise networked learning activity in order to build professional capital. A mixed methods approach was used to develop a case study of the Hampshire RLN. Fieldwork commenced with in-depth semi-structured interviews with all school leaders of schools participating in the network, and other key participating teachers (12 interviews in total). A bespoke social network survey was then administered to schools (41 responses). The purpose of the survey was to explore types of RLN-related interaction undertaken by teachers and how teachers were using the innovations emerging from the RLN within their practice. Data indicate that models of distributed leadership that actively involves staff in decisions about what innovations to adopt and how to adopt them, are more successful in ensuring teachers across networks: 1) engage with innovations; 2) explore how new practices can be used to improve teaching and learning, and; 3) continue to use/refine practices in an ongoing way. Correspondingly we argue these findings point to a promising approach to system improvement and add valuable insight to a relatively understudied area.

Key words: Professional Learning Network; Research Learning Network; Distributed Leadership; Professional Capital; Innovation Mobilisation

Introduction

The recent focus on professional learning networks as vehicles for educational improvement has brought about an upsurge in research and scholarship in this area of the field (Brown and Poortman, 2018; Hargreaves and O'Connor, 2018). As policymakers from different contexts look for ways to improve their schools and education systems and the quality of teaching and learning that takes place within them, they are increasingly exploring different forms of collaborative practice and networked structures (Pont, et al, 2008; Eckhart, 2018). As such, there is growing evidence of the potential of collaboration in helping teachers develop their practice through peer review, critical reflection, sharing knowledge and the co-construction of teaching methods (Vangrieken et al, 2015). As de Jong, Meirink and Admiraal (2019: 1) observe:

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3 'collaboration is an important aspect of teachers' professional lives, as a means to
4 continuously reflect on and improve the practice of teaching'.
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7 The idea that school improvement is facilitated through partnership and professional
8 collaboration is a powerful and persuasive one, with which few would argue in
9 principle. Indeed, there is now a burgeoning body of research that supports this notion
10 (e.g. Chapman and Hadfield, 2010). Nonetheless, the field remains at a stage of relative
11 infancy and we still have much to learn about the actualities of collaborative activity
12 within and between schools (Ronfeldt et al, 2015). For example, a recurring theme
13 within the literature in this area is leadership and its contribution to and influence on
14 professional collaboration in schools. As with many other aspects of schooling, the role
15 of the leader is widely argued to be pivotal to the effective implementation and
16 operationalization of networked activity and collaborative professional practice (see
17 Brown and Flood, 2019; Chapman and Hadfield, 2010). Yet, whilst we can be
18 reasonably confident that leadership is a factor in effective collaboration practice we
19 know much less about how and why this might be the case (Azorin, et al, 2019).
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23 In this article we start to address this issue through findings from an empirical research
24 project that set out to explore the practicalities of leading school-based networks.
25 Drawing on data from a case study of a Professional Learning Network in England, we
26 explore how the leaders involved in this group of schools employ a distributed approach
27 to mobilise networked learning activity, thereby building capacity. In particular, we
28 explore leaders' use of distributed leadership by addressing the following research
29 questions:
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- 31
32 1) What models of distributed leadership do school leaders facilitate to ensure all
33 teachers in their school engage with the innovation emerging from the PLN?
34 2) To what extent do these forms of distributed leadership lead to the effective
35 mobilization of PLN innovation so improving professional capital?
36 3) What are the implications for system level improvement based on professional
37 capital development?
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39
40 As a result, we argue that a distributed leadership approach facilitates the growth of
41 professional capital within and between the schools within the network. In other
42 words, improvements in the human, social and decision-making capitals of school
43 staff (Hargreaves and Fullan, 2012). Furthermore, we use the analysis of data relating
44 to research question 3) to propose a number of implications for the leadership of
45 networked activity at the system level.
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48 **Education networks:** Over the last decade or so, the school system in England has
49 been gradually engineered into something designed to be 'self-improving' (Dowling,
50 2016). The characteristics of 'self-improvement' include that individual schools now
51 have greater responsibility for their own improvement; that teachers and schools are
52 expected to learn from each other so that effective practice spreads; and that schools
53 and school leaders should extend their reach to support other schools in improving
54 (Greany, 2014). It is clear, therefore, that successful self-improvement depends on the
55 existence of strong networks, which foster learning and the sharing of effective
56 practice. At the same time, it has been suggested that the realization of self-
57 improvement will emerge from establishing a 'culture of professional reflection,
58 enquiry and learning within and across schools, [centred] on teaching and student
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learning' (Gilbert, 2017: 6). In light of this, it is worth reflecting that networks are also viewed as instrumental to how teachers can and should develop professionally; and that it is now recognized that teachers must be 'active agents of their own growth' (Schleicher, 2012: 73). To actualise professional growth, teachers need to learn: teachers developing is not enough, rather teachers must be knowledgeable, possess practical expertise, and have the wherewithal to change their behaviours in order to get different results: they must become professional learners (Easton, 2008). Learning results from effective collaboration with others (*ibid*). But since the school as a unit has become too small in scale and too isolated in nature to provide rich professional learning environment for teachers, successful professional learning activities will typically involve three key principals: teachers collaborating between schools; teachers collaborating over time; and teachers collaborating with external partners (Stoll *et al*, 2012). Thus, achieving the learning culture required by the notion of self-improvement requires networks of teachers who come together (with other key partners) to learn and to share this learning with others. Since not every teacher in a school can collaboratively learn with every other teacher in a network of schools, the most efficient formation of networks will comprise small numbers of teachers who learn on behalf of others. Therefore, while described as the self-improving *school* system, the process of improvement leading to system level change must necessarily come from small numbers of networked teachers (along with other stakeholders) engaged with addressing key issues of teaching and learning and able to lead processes of knowledge mobilization and change within their schools.

Professional Learning Networks

It is this recognition that networks and networking operates most effectively at the level of the teacher that has seen a growing number of school leaders and policy-makers turn their attention to *Professional Learning Networks* (PLNs) as a way of improving education in schools and across school systems (Armstrong, 2015). Defined by Brown and Poortman (2018: 1) as 'any group who engage in collaborative learning with others outside of their everyday community of practice, in order to improve teaching and learning in their school(s) and/or the school system more widely', a graphical conceptualisation of PLNs is set out in Figure 1 below. Here each black dot or white star represents an individual (e.g. a teacher, academic researcher, or other stakeholder). The arrows, meanwhile, represent connections and so flows of information or other forms of social capital that occur between individuals. As can be seen, there are two types of groupings of individuals represented in Figure 1. The first, demarcated by the dotted circles, are everyday communities of practice (e.g. a whole school, a subject department, a university department, etc.). The second type of grouping – the mass of black dots in the centre of the diagram – represents a Professional Learning Network. In the three communities of practice presented in Figure 1, the members of the PLN are those individuals who are represented by white stars. Thus it can be seen that PLNs are comprised of individuals with connections that stretch beyond the dotted circles and into the network of individuals at the centre of the diagram. At the same time, as the number of white stars indicates, PLNs typically comprise a small number of individuals from each community of practice rather than a whole school approach.

Figure 1: A graphical depiction of PLNs

[insert Figure 1 about here]

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4 Brown and Poortman's (2018) definition illustrates that PLNs can have many
5 different foci and be comprised of many different types of stakeholder. Ultimately,
6 however, irrespective of composition or focus, the aim of PLNs is to build capacity,
7 which is defined as 'the power to engage in and sustain learning of all people at all
8 levels of the educational system' (Stoll, 2010: 470). Capacity is built first by helping
9 PLN participants to create and share knowledge about specific educational problems
10 as well as innovate (i.e. develop novel responses to these problem). Capacity is also
11 built as PLN participants broker new knowledge and/or innovations to colleagues
12 within their home schools (Hubers, 2016).
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15 16 **Leadership**

17 Leadership has a dual purpose to ensure the success of PLNs in building capacity and
18 then mobilising this new knowledge or innovation. It is required of the network itself
19 to ensure that it functions effectively, but also to secure the development of
20 professional capital through the engagement of all staff in PLN activity within their
21 own community of practice. In other words, leaders need to understand how to
22 meaningfully support both participation of key staff in the PLN and the subsequent
23 mobilisation of PLN activity back in their school. To maximise the impact of PLN
24 engagement, school leaders need to particularly focus on developing three key areas
25 (Brown and Flood, 2019); first leaders need to *formalise* PLN engagement, ensuring
26 that engagement remains a key focus across the school and that its importance is
27 recognised by all stakeholders; secondly school leaders need to *prioritise* this
28 engagement to ensure appropriate support is available through the allocation of
29 resources to allow the work of the PLN to be achieved and thirdly school leaders need
30 to *mobilise* new knowledge and practice developed in the PLN through the
31 development of organisational routines embedded in school cultures. Of these three
32 areas it is the mobilisation of network activity back in the home school and the
33 subsequent leadership actions required to facilitate this that is the least understood.
34 This gap in researchers' and practitioners' knowledge has prompted new concepts of
35 PLN leadership to be explored and developed in recent years; in particular how
36 distributed leadership can play a greater role.
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41 **The power of distributed Leadership to mobilise network activity**

42 Conceptualising leadership as a dispersed or distributed notion is not particularly new
43 or novel, although scholarship in this area of the field has grown over the last two
44 decades amongst researchers in the fields of organisational design and educational
45 leadership (e.g. Leithwood, et al., 2009; Spillane, et al., 2001; Azorin, et al., 2019).
46 Distributed leadership is a contested arena and definitions vary. **Some of the more
47 prominent interpretations typically view leadership through a functional lens in respect
48 of the roles and responsibilities of organisational members. Such perspectives view
49 distributed leadership in respect of participation in and influence on classroom
50 instruction and school improvement efforts (e.g. Leithwood et al, 2009; Day et al,
51 2009). Other authors have focused more on the means by which leadership practice is
52 distributed within and between organisations and the broad range of knowledge and
53 intelligence within settings (in theory leading to more accurate and effective decision
54 making.) These perspectives are more concerned with the distribution of practices
55 rather than people or roles (e.g. Spillane, 2006). Both interpretations can provide useful
56 lenses through which to view and **make sense of distributed leadership as a vehicle for
57 exploring how** knowledge and innovation emerging from networked activity is
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3 mobilised within and between schools. Kotter (2014: 20), for instance, describes the
4 synchronisation of networked activity and school structures as a 'dual system whereby
5 'in truly, reliable, efficient, agile and fast enterprises, the network meshes with the more
6 traditional structure ... it is not a super task force that reports to some levels in the
7 hierarchy ... it is seamlessly connected and coordinated with the hierarchy...'. In other
8 words, the networked activity is underpinned by leadership distribution amongst groups
9 of individuals and meshed with existing structures within the system. **In this sense the
10 (school) system, the (professional learning) network and the distributed leadership
11 practice are interwoven and serve to facilitate teacher participation in instructional
12 influence and decision making.**

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16 A systems thinking approach is also helpful in this regard. Building on linear and
17 relational models of knowledge mobilisation, a systems approach recognises that the
18 dissemination of information and the relationships through which this process occurs
19 are informed and shaped by structures that mediate interactions between different actors
20 (Frenck, 1992). Within the context of a PLN, such actors (leaders, teachers, researchers
21 etc.) are linked by a series of interdependent systems including their own schools and
22 settings and the overarching educational structures within which they all practice. A
23 systems approach acknowledges this complexity, the roles and behaviours of the
24 different stakeholders and the influence of these factors on the process of knowledge
25 mobilisation. Importantly, leadership within complex systems needs to become more
26 facilitative and participatory (Snowden and Boone, 2007). As such, more distributive
27 forms of leading become appropriate; with Azorin, Harris and Jones (2019) for
28 instance, suggesting a distributed leadership perspective offers 'practical insights into
29 the working of professional learning networks, as complex eco-systems' and provides
30 a 'powerful framework for future empirical enquiry into professional learning
31 networks' (p. 11). We aim to build on this proposition by drawing on empirical
32 evidence that demonstrates the means by which distributed leadership mobilises
33 networked learning activity thus facilitating the development of professional capital
34 (Hargreaves and Fullan, 2012). We then put forward our own propositions as to how
35 this might be scaled up to facilitate the growth of professional capital at a systemic
36 level.

40 41 **Research Contexts**

42 To date there have not been studies that examine whether models of distributed
43 leadership can help mobilize networked learning activity, thus leading to the
44 development of professional capital. Given the emergence and importance of PLNs
45 for school and school system improvement, and because PLNs rely on the effective
46 mobilization of innovation to build capacity, understanding this issue is significant.
47 To explore it further, this paper reports on data taken from a case study of the
48 *Hampshire Research Learning Network*, **which ran from June 2017-July 2018.**
49 Research Learning Networks (RLNs) represent a specific type of PLN designed to
50 enable the roll out of new research-informed teaching practice at scale (Brown and
51 Flood, 2019). **RLNs have emerged as a result of England's high autonomy, high
52 accountability approach to school improvement. Underpinning this approach (often
53 referred to as school 'self-improvement') is that responsibility for teacher professional
54 development has been shifted from local authorities to schools. This devolution of
55 power has occurred in the belief that it would result both in improved quality and
56 increased innovation (Greany and Earley 2018). At the same time, it is expected by
57 central government policy makers that teachers and schools should seek to to learn**

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3 from each other so that effective practice spreads. As a consequence, many schools
4 have sought to engage in networked forms of learning both with peers and in relation
5 to educational research (Greany, 2014; Greany and Earley, 2018): hence RLNs. The
6 specific RLN that forms the basis of this case study: the Hampshire Research
7 Learning Network, was instigated by one school leader in collaboration with a
8 university researcher. Through local contacts and word of mouth interested school
9 leaders were invited to attend an introductory workshop led by the university
10 researcher to outline the planned network activity. The Hampshire Research Learning
11 Network comprised 15 senior leaders and teachers from five infant schools situated
12 within a 45-mile radius in the south of England. Through the successful mobilisation
13 of network innovation it was estimated that there was potential to develop
14 professional capital of an additional 30 teachers from the home schools and
15 subsequently impact on some 720 students.
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19 **Methods**

20 To address our research questions, a mixed methods approach was employed.
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23 **Qualitative data**

24 Fieldwork commenced with in-depth semi-structured interviews with all school
25 leaders of schools participating in the RLN. Focused on addressing research question
26 1), the purpose of these interviews was to ascertain what approaches to distributed
27 leadership school leaders facilitate to successfully mobilize RLN-related innovation.
28 In-depth semi-structured interviews were also held with other key teachers
29 participating in the RLN. The purpose of these interviews was to ascertain additional
30 perspectives relating to models of distributed leadership; how effective approaches to
31 distributed leadership were perceived to be; and potential improvements moving
32 forward.
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35 **Quantitative data**

36 With research question 2), 'effective' was assumed to mean the extent to which all
37 teachers within RLN schools were able to benefit from and contribute towards the
38 RLN-generated innovation. In other words, the extent to which the participating in the
39 RLN had led to professional capital development. To address this question, a bespoke
40 survey was developed and administered to each school within the RLN case study.
41 The survey explored types of RLN-related interaction undertaken by teachers and
42 how teachers were using the innovations emerging from the RLN within their
43 practice. To investigate the types of innovation-related interactions that were
44 occurring, the survey drew on social network theory and methods to provide an
45 understanding of the patterns of knowledge sharing and collaboration relating to the
46 RLN (Spillane *et al.*, 2010). Alongside these network-related components, we also
47 examined how the 'recipients' for new innovations were engaging with them: in other
48 words the extent to which people felt involved with any new approach; the extent to
49 which they employed the new approach; and, as a result, the likelihood that any new
50 approach will impact on practice. To examine such engagement, the survey employed
51 the *Levels of Use* scale, which originates from the *Concerns Based Adoption Model*
52 (CBAM) (Hall and Hord, 2020). Here Levels of Use range from the user doing
53 nothing, to them behaving as a novice, to them behaving as an expert user, so making
54 major modifications to the innovation to improve its efficacy. A related application of
55 the CBAM literature can be seen in Anderson *et al.*'s (2019) study of two teacher
56 PLNs in Kenya. With the aim of mapping and assessing changes (or the lack thereof)
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in the instructional practices of teachers who were and were not involved in the PLNs, Anderson et al. (2019) drew on CBAM in developing their classroom observation tool, noting that “teacher networks have the potential to deepen teacher expertise in the use of teaching methods adapted to their local contexts through practice-embedded collaborative learning activities” (pp. 126-127). However, whereas they modelled the potential of PLNs to deepen expertise using qualitative methods, we relied on quantitative survey methods.

Collecting and analysing interview data: A total of 12 of the 15 staff involved in the RLN were interviewed. Of these, six interviews were the senior leaders of participating schools, five were with participating teachers and one was with an executive principal. To aid interpretation of the findings, Table 1 identifies which RLN participants belong to which school (to preserve anonymity, both participating teachers and the executive principal have been grouped together under the column ‘teachers’). All interviews were undertaken by the first author and were recorded. Data were then analysed thematically; using inductive analysis to provide a categorization of responses. To test the construct validity of the coding, the second author used the coding frame developed to deductively and independently code three transcribed manuscripts (a 25 percent sample). The inter-rater reliability – i.e. the ratio of the total amount of agreement in the coding and the total amount of coded text excerpts – was 85% and considered reliable (Miles and Huberman, 1994).

Table 1: Research Learning Network participants listed by school

[insert Table 1 about here]

Collecting and analyzing survey data: A roster design, i.e. a pre-populated, complete list of all potential members of a network, was used to collect network data. This meant, all RLN schools were asked to supply a complete list of the names of their teachers and senior leaders. The survey itself was developed using survey monkey. In keeping with best practice, we sought to achieve a response rate from each school in the region of 80-85% (Spillane *et al.*, 2010), with actual response rates as follows: 1) school ‘O’ decided not to take part in the survey due to workload issues; and 2) response rates for each school were: Federation of ‘C’, ‘N’ & ‘S’ = 82% (27/33); ‘M’ = 78% (14/18). In terms of respondent characteristics: 1) Federation of ‘C’, ‘N’ & ‘S’ = 100% female; ‘M’ = 93% female; and 2) average years in service: ‘C’ = 9.6; ‘M’ = 6.4; ‘N’ = 9.4; and ‘S’ = 9.

Social Network Analysis data was analysed using the ‘R’ coding language and UCINET 6 (Borgati, *et al.*, 2002). Other quantitative data was analysed using SPSS. Analyses were undertaken to examine the multiple relational dimensions of the survey data and to create nominal categories for each possible combination of relationships individuals might have with one another. These include single relations: e.g. the occurrence of only conversation between individuals, or the seeking out of work related advice; and all three relations (conversation, professional development & collaboration).

Findings:

Interview data: Hairon and Goh (2015) argue that we should seek out the existence of distributed leadership by examining the actual practices of individuals rather than their assigned roles or functions. Specifically, that we should look for the presence of three dimensions of distributed leadership in the actions of school staff. The first dimension is ‘empowerment’ - the ability or power of ‘subordinates’ to make decisions. Empowerment requires school leaders to relinquish power, albeit while still ensuring alignment and coherence of the focus of distributed leadership, with the priorities and values of the school (Hairon and Goh, 2015). The second dimension of distributed leadership is ‘interaction for shared decisions’. Here the notion of leadership corresponds to the influence that emerges as individuals at all levels engage with one another. When combined with the idea of empowerment, acts of influence can thus be initiated by anyone and flow in any direction. To necessitate this second dimension, forums or situations will be required to enable educators to interact effectively. The third dimension, is ‘developing leadership’. This dimension suggests that distributed leadership can only function effectively when individuals within the organization have the required skills to engage in activities such as: ‘rallying others towards common group goals, considering individual needs of group members in decision making, making decisions based on micro and macro contextual knowledge... and promoting shared ownership and accountability’ (Hairon and Goh, 2015). Key is that dimension two and three cohere to ensure participative or shared decision-making amongst all members of staff.

Models of distributed leadership

Applying these three dimensions to the interview data highlights the existence of three models of distributed leadership designed to ensure that practices from the RLN are mobilized effectively. In the first model, Distributed Leadership model 1 (DL1), primarily evident in schools ‘S’, ‘M’ and ‘O’, participating teachers were empowered to make decisions regarding the RLN, with new ideas expected to permeate through being championed by advocates. For example, RLN participants were typically encouraged to influence colleagues by persuading them to adopt practices; with the skills required to achieve this persuasion mostly corresponding to effective change management. For instance, through establishing a ‘sense of urgency’ (senior leader #5). At the same time, respondents also noted the need for RLN participants be motivated and to really encourage this way of working to get it off the ground ‘[you need to be] really enthusiastic and really want to drive it and keep it going... developing the resource... and putting in all the hard work’ (senior leader #4); with teacher #5 also noting the need to bring on board those who are resistant to adopting new approaches to teaching and learning. Respondents also reflected that in an environment in which there is both a *lassaiz faire* market of ideas and practices, as well as multiple competing priorities, ‘whoever “shouts loudest” [i.e. most effectively espouses the benefits of something] is most likely to gets encouragement and buy in for their ideas’ (teacher #4).

In the second model of distributed leadership; Distributed Leadership model 2 (DL2), primarily evident in school ‘N’, all teachers were empowered to make decisions regarding the development of new teaching and learning practices linked to the RLN, but teachers participating in the RLN were empowered to facilitate this process as a collective endeavor. Here influence occurred via collaborative inclusive decision-making, taking place within, for example, a school professional learning community. For example, senior leader #1 noted that in her school: ‘we now have an in-school

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3 learning community that wasn't there before... [where we] use learning conversations
4 as a basis for supporting and challenging each other'. The skills required for DL2 to
5 flourish were identified as, for those supporting the process, effective facilitation,
6 ('usually they're led by [RLN participant, who explains] where we've got to with the
7 network and then sets them something to do, or discuss': senior leader #1) as well as
8 an awareness and understanding of the needs and the aims of the organization.
9

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11 Within school 'N', decision-making using DL2 was focused on a specific issue, was
12 collective in nature and followed a relatively linear pathway; which moved from
13 knowledge and discussion ⇒ decision-making ⇒ trialling and embedding. But DL2
14 could also occur as a process where individuals or small teams each have their own
15 foci, situated within a common theme, and are supported to engage in a process of
16 iterative exploration in relation to this focus. A variant of DL2: Distributed
17 Leadership model 2+ (DL2+), therefore, occurred when the role of RLN participants
18 was to facilitate an ongoing process of investigation within their school. This variant
19 could be seen in school 'C', with senior leader #3 observing: [our approach is now]
20 'this is the issue, what are we going to do to address it, what [research] is out there
21 that has been tried successfully?' As a result the discourse in the staff room is more
22 collaborative: '[a teacher] will come in with their moans about a child, which often
23 happens, and then somebody else will say, "Ah, but I was trying that with so-and-so
24 as part of our research, and that's really worked well", or, "I was reading something
25 about this, try this." Likewise, teacher #3 stated that: 'the school staff room is
26 constantly somewhere where [in relation to each research inquiry project] we're
27 going, "I tried that today and it really worked with them" and [name of colleague] is
28 like, "Oh, I read a bit of research about this." So we engage in the process like that'.
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33 **Survey data:** In the earlier section on Professional Learning Networks, we argued
34 that the purpose of PLNs is to build capacity; specifically the capacity of all teachers
35 connected to the PLN to learn, and for this learning to result in improved practice.
36 Naturally such improvements in practice should then result in enhanced outcomes for
37 children. Allied to this idea of capacity building is that of sustainability. Here capacity
38 building should be viewed as something that is ongoing and that results in long-term
39 changes in behaviour. At the same time capacity and sustainability depend on teachers
40 being more than just be passive implementers of new practices; rather they need to be
41 'active change agents' (Hubers and Poortman, 2018). This means teachers should
42 critically engage with, and refine, new practices to maximize their impact. What is
43 required therefore is an understanding of whether teachers within participating
44 schools have not only learned about RLN related innovations through interactions
45 with their colleagues, but also whether they are engaging in a collaborative process of
46 use, experimentation and refinement, in order to ensure these innovations are
47 delivering maximum impact. To try and ascertain this we first look at the social
48 network data that emerged from the survey. This can be found in Charts 1 and 2,
49 below.
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54 To begin with, we can examine whether there is basic level interaction occurring
55 around RLN related outputs, such as conversation. For example, Chart 1 looks at
56 responses to the question: 'In relation to the work of/new practices emerging from the
57 RLN, with whom have you engaged in conversation regarding these new approaches
58 to teaching and learning'. Importantly, this analysis explores only instance of
59 conversation, ruling out the possibility of conversation plus some other activity. Here
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it can be seen that *just* conversation between staff in relation to RLN outputs seems to be much more prevalent in schools ‘S’, and ‘M’, while less common in schools ‘C’ and ‘N’. This can be confirmed by calculating the density metric for each network. Density is the proportion of actual connections between individuals in relation to all possible connections. Measuring the density (D) of these relationships shows that for school ‘S’, $D = 23.1\%$ and for school ‘M’, $D = 21.6\%$. For schools ‘N’ and ‘C’, meanwhile, D is much lower, and only equals 8.9% and 6.7% , respectively.¹

Since conversation alone is insufficient for attaining expertise, which also requires the ongoing, hands-on use of an innovation, we can also look at how conversation is combined with other activity. For instance, Chart 2 illustrates who survey respondents say they have conversations with AND who they engage with ‘in professional development activities regarding new approaches’ as well as ‘collaborate with to trial and embed new approaches’. As we move away from conversation exchanges to explore relationships that require more interaction and collaboration, it becomes clear that this is most prevalent in school ‘N’ and, to a lesser extent in school ‘C’. Returning to the density metric, here $D = 75.6\%$ for school ‘N’, and 22.2% in school ‘C’. For school ‘M’, $D = 17.6\%$, while for school ‘S’ it is practically non-existent.²

Chart 1: Relationships involving just conversation regarding RLN-related teaching and learning approaches

[insert Chart 1 about here]

Chart 2: Relationships involving conversation, professional development and collaboration regarding RLN-related teaching and learning approaches

[insert Chart 2 about here]

Use of RLN innovations

The survey data also reveals *how* school staff were using RLN outputs. As suggested above, the expert use of a new approach (i.e. use steeped in high levels of professional capital) moves beyond more mechanical, instruction-led use, to use that is tailored and responsive to context and situation. To explore this, survey respondents were asked to indicate the way in which they were using RLN-related innovations via the *Levels of Use* scale (Hall and Hord, 2020), designed to explore the take-up of innovation.

Across the six schools pedagogical innovations included the development and use of a new spelling programme, using texts to develop empathy skills in young children, developing new practices to boost attendance and parental engagement. The question asked to respondents was ‘Thinking about the RLN your school is engaged with, to what extent are you using the new approaches to teaching and learning (innovation)

¹ The variable homophily model can be considered significant, with $p < .001$. Variance explained (R^2) is low however (7.3%) because of the interconnectedness of schools ‘C’, ‘N’, and ‘S’, and so the potential for between-school conversation (school ‘M’ was not included in this statistical comparison).

² The model can be considered a significant and demonstrates that a moderate relationship exists, with $p < .001$, $R^2 = .45$.

that relating to/emerging from it? (tick one)' The responses they gave can be found in Table 2, below.

The questions in the Levels of Use scale can be broadly divided into four use types. These are: 'no' use, which corresponds to the first question on the scale; 'preparing for use', where respondents are getting ready to begin using innovations, typically by finding more out about them and what their use entails; 'mechanical use' is typically usage without reflection or with a view to change and improvement. In other words, mechanical use involves employing an innovation in accordance with how one was shown or told to use it (and getting this use 'right'). 'Expert use', on the other hand is when we begin to understand how our use of an innovation can be modified according to the specifics of a situation so that its impact can be improved. When it comes to teaching, expert use also involves the collaborative modification of new approaches to teaching and learning so that all students benefit.

As can be seen from Table 2, in school 'C', just over half of respondents (55.5%) suggested they were engaging in some form of expert use of the RLN-related innovations, with a fifth (22.2%) engaging in some form of mechanical use. For school 'N' all teachers were engaging either in expert (66.6%) or mechanical use (33.3%) of the RLN related interventions. For schools 'M' and 'S', however, usage was much more concentrated at the bottom end of the scale. For instance, nearly half of staff in school 'M' (45.5%) were not using the innovations at all, with just over a third (36.4%) preparing to use them. For school 'S', 44.4% of staff were either not using RLN-related innovations, or preparing for their use. A third of school 'S' staff were engaging in mechanical use which just a fifth (22.2%) were engaged in expert level use. Furthermore, using the metric 'degree centrality' (which provides an indicator of the number of people who are connected to an individual) and exploring the relationship between this and the RLN innovation use scores presented in Table 2, we can examine the extent to which more intense interaction led to more expert use of innovations. Such analysis does indeed show that a mix of conversation, professional development and collaboration is a meaningful predictor of the use of RLN innovations by school staff (here, $F = 4.694$, $p = .009$, so this relationship can be considered significant); whereas just conversation is not (with $p = .245$).

Table 2: To what extent are school staff using the new approaches to teaching and learning relating to the RLN?

[insert Table 2 about here]

Discussion

PLN's can help in mobilising professional capital and improving school effectiveness across educational systems but to do that it is important to understand how networks function and what they exactly do that assists student outcomes (Rincon-Gallardo and Fullan, 2016). From Charts 1 and 2 and Table 2 it can be seen that within schools 'N' and 'C', a more collaborative interactive approach that ensures staff go beyond just the simple exchange of information, to engaging in behavior that is likely to help them develop as expert users of these new practices; with this behaviour, in turn, ensuring that innovations are continually refined in order to maximize their impact for children and young people. These approaches can provide opportunities for the development of professional capital across schools within the PLN which can offer

more experiences for all students (Chapman *et al.*, 2016) but also it offers the prospect of reaching ‘into the schools from the outside’ (Ainscow, 2016, p. 6).

Little (1990) claims that collaboration lays the groundwork for developing new shared ideas and promoting leadership. Collaboration in networks can present significant change in classroom practice and student achievement (Leithwood *et al.*, 2019; Rincon-Gallardo and Fullan, 2016). Furthermore, evidence show a positive relationship between organisational change and distribute forms of leadership (Harris, 2008). From our data it could be seen that three approaches to distributed leadership, directed at mobilizing outputs of the RLN emerged: Distributed Leadership models 1, 2 and 2+ (or DL1, DL2 and DL2+). In the first of these models, DL1, (School ‘S’, ‘M’ and ‘O’) RLN participants were responsible for developing new approaches to teaching and learning and then for encouraging their adoption by others. With DL2, (school ‘N’) all teachers were empowered to make decisions in relation to new teaching and learning practices, but teachers participating in the RLN were responsible for facilitating this process. In school ‘N’ the DL2 approach was delivered using a learning conversation-type process within a professional learning community. The DL2 process in school ‘N’ was also was focused on a specific issue, whole-school and collective in nature, and followed a straight line pathway; leading from knowledge and discussion to trialing and embedding. With DL2+ (school ‘C’), RLN participants acted to facilitate a cycle of enquiry within their school. Here individuals and small teams each had their own foci, situated within a broader common theme, and were supported to engage in a process of iterative exploration in relation to this focus. While each model is clearly different, each has the potential to facilitate professional capital as long as they enable types of collaboration that move beyond just the sharing of information and advice, to the active trialing of new teaching practice. At the same time, the data above seems to indicate that models of distributed leadership that *actively* involves staff in decisions about what innovations to adopt and how to adopt them, are more successful in getting staff to: 1) **actually engage** with innovation; 2) really **test out how new practices can be used** to improve teaching and learning, and; 3) **continue to use** and refine practices in an ongoing way.

Implications

We noted at the beginning of the paper that one potential approach to mobilisation research-informed innovation across networks could be the use of distributed leadership. At the same time, we have illustrated that effective mobilization is something that leads to more than school staff simply knowing about an innovation; it also leads them using the innovation in ways steeped in high levels of professional capital expertise. With this in mind, combining the interview and survey data suggests that not all approaches to distributed leadership are equal and that the different approaches to employed by senior leaders in the Hampshire RLN displayed variable levels of success. In particular, our findings suggest that for school and school system leaders looking to encourage the mobilization of research-informed interventions, an approach akin to the Distributed Leadership model 2 approach may perhaps be most impactful. Such an approach requires Research Learning (or other) Networks participants to facilitate a collective and collaborative process of knowledge sharing, decision making and the trial and refinement of practices with colleagues in their ‘home’ school. This was based on what occurred within the RLN and seems to result, ultimately, in staff using these practices in a more expert way. While only one case, we suggest the DL2 approach appears promising. Correspondingly we argue that our

analysis provides both direction and further food for thought for school leaders and researchers in terms of how to support the mobilization of PLN-related innovations using a distributed leadership approach. Our recommended next steps, therefore, are that this promising model should be trialled on a much larger basis and its effectiveness assessed using a more experimental form of evaluation.

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Figure 1 : A graphical depiction of PLNs (from Brown and Poortman, 2018)

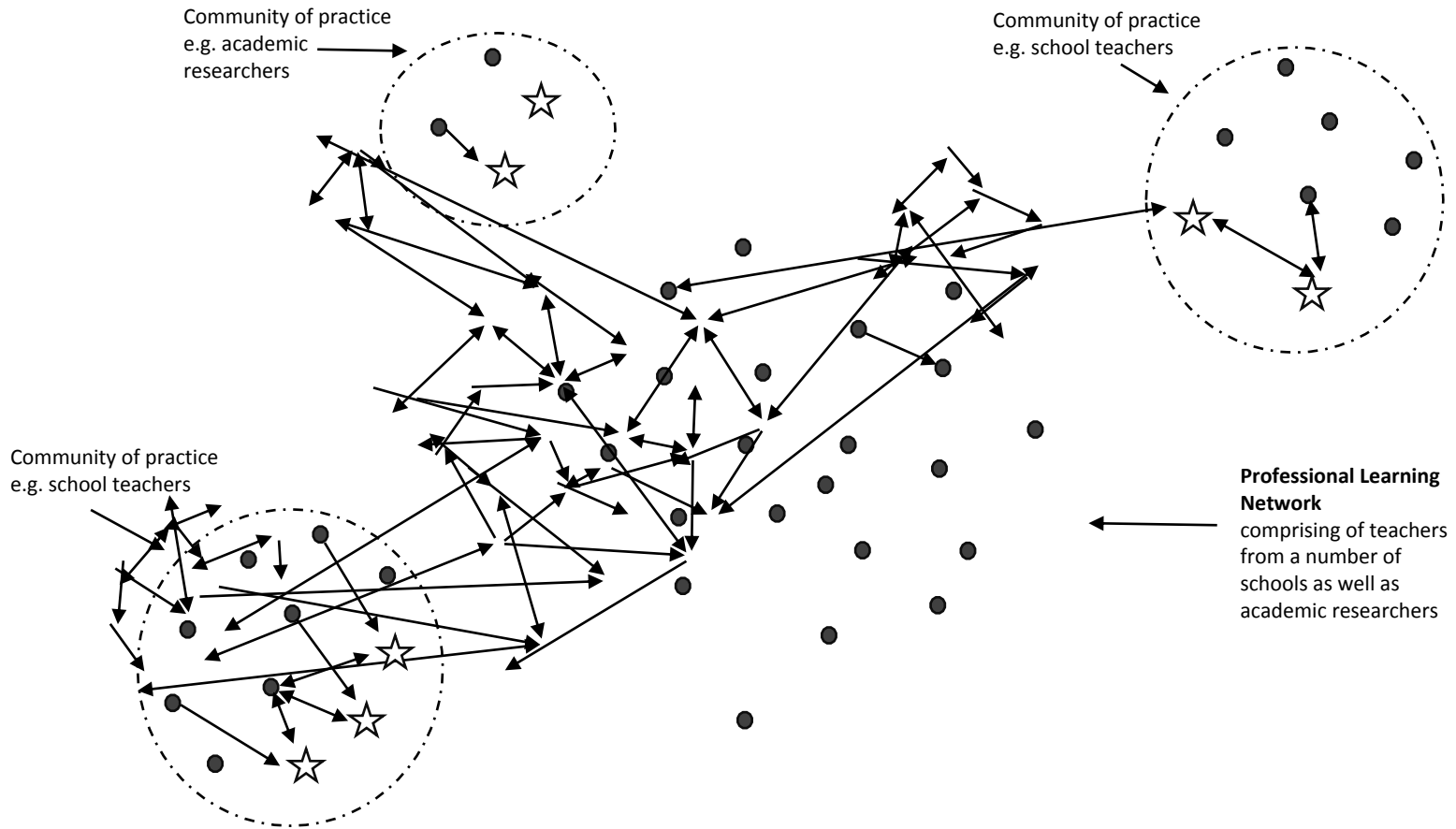
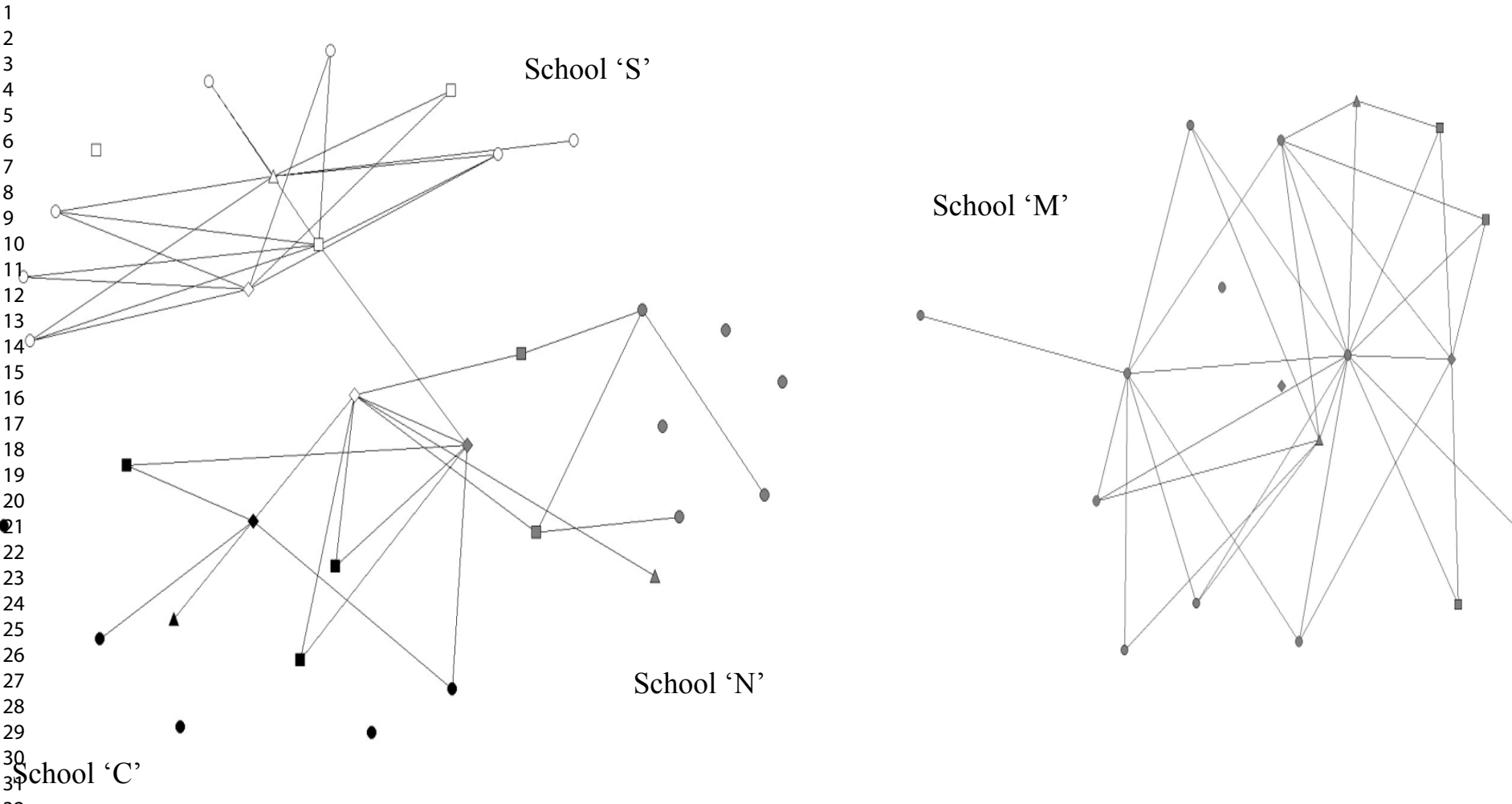
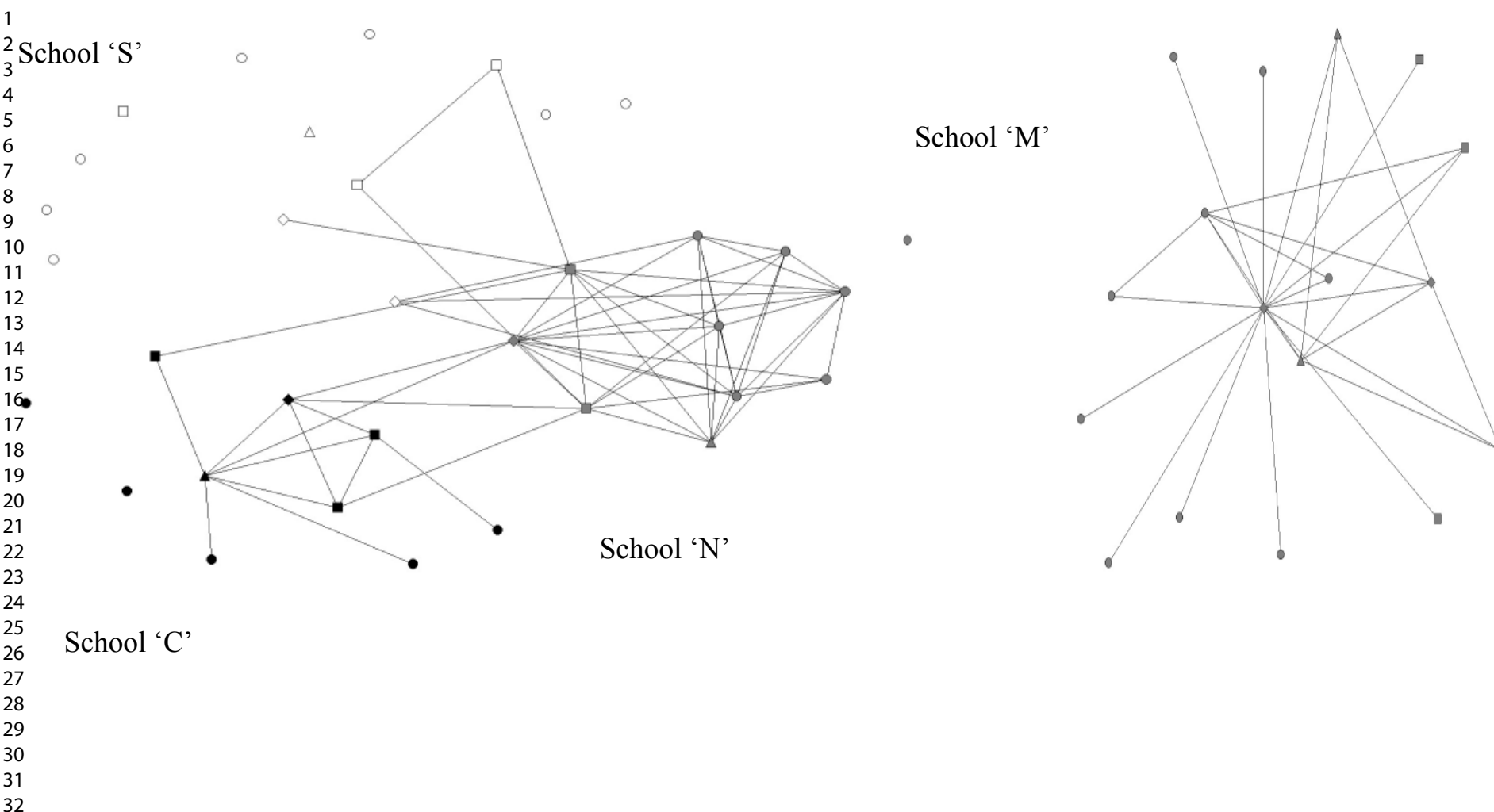


Chart 1: Relationships involving just conversation about RfL-related teaching and learning approaches



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 34 **Key:** Circles = Teaching assistants; Squares = Teachers; Triangles = Middle leaders; Diamonds = Senior leader; and
 35 Lines represent connections between teachers, teaching assistants, school leaders etc.
 36
 37 Combined data is presented for schools 'C', 'N' and 'S' (who operate as a federation). Here it should be noted that:
 38 Black = School 'C'; Grey = School 'N' and White = School 'S'.
 39

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Chart 2: Relationships involving conversation, professional development and collaboration about RLN-related teaching and learning approaches



33
 34 **Key:** Circles = Teaching assistants; Squares = Teachers; Triangles = Middle leaders; Diamonds = Senior leader; and
 35 Lines represent connections between teachers, teaching assistants, school leaders etc.
 36
 37 Combined data is presented for schools 'C', 'N' and 'S' (who operate as a federation). Here it should be noted that:
 38 Black = School 'C'; Grey = School 'N' and White = School 'S'.
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Table 1: Research Learning Network participants listed by school

School	Senior leaders	Other participants
'N'*	#1	#1
'S'*	#2	#2
'C'*	#3	#3
'M'	#4	#4
'O'	#5; #6	#5; #6

* Schools 'N', 'S' and 'C' are federated, meaning that as well as individual heads of learning for each school, there is also an Executive Headteacher responsible for all three schools.

Table 2: To what extent are school staff using the new approaches to teaching and learning relating to the RLN?

School	Use type	C (n=9)	N (n=9)	M (n=11)	S (n=9)
I have little or no knowledge of these practices and no involvement with them	No use	22.2%	0%	45.5%	11.1%
I am preparing for my first use of these practices	Preparing for use	0%	0%	0%	22.2%
I have recently acquired or are acquiring information about these practices and/or have recently explored or am exploring their value and their demands for both myself and students		11.1%	0%	18.2%	11.1%
I am focusing most effort on the short-term, day-to-day use of these practices with little time for reflection	Mechanical use	11.1%	11.1%	9.1%	0%
I am now regularly using these practices and am confident in my ability to do so		0%	22.2%	9.1%	33.3%
I am varying the use of the innovation to increase the impact on students within my immediate sphere of influence (e.g. my class or similar). Variations are based on knowledge of both short- and long-term consequences for students	Expert use	11.1%	11.1%	0%	0%
I am combining my own efforts to use the practices with the related activities of colleagues to achieve a collective impact on students within our common sphere of influence (e.g. in a year group)		33.3%	44.4%	0%	11.1%
I am re-evaluating the use of the innovation, and am seeking major modifications or alternatives to achieve increased impact on students, and I am exploring new goals for myself and the school.		11.1%	11.1%	9.1%	11.1%
Other (please specify)		0%	0%	9.1% [±]	0%

[±] 'Refinement of the research focus'