The three roles of school leaders in maximizing the impact of Professional Learning Networks: a case study from England

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1) Introduction

Professional Learning Networks (PLNs) are representative of a more general trend in society, in which the connection of individuals to wider 'capital' resource networks (e.g. social capital networks, cultural capital networks, human capital networks, and so on) are now regarded as a better alternative to more top-down or collective mechanisms for support and improvement (Bauman, 2012; Bourdieu, 1986; Castells, 2010; Wenger, 1998). In themselves, PLNs are defined as any group engaging 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 (Brown and Poortman, 2018). Research evidence suggests that the use of PLNs can be effective in supporting school improvement (Armstrong, 2015; Boylan, 2018; Dogan and Adams 2018; Prenger *et al.*, 2017) but that such impacts are not guaranteed. Correspondingly, a number of supporting conditions need to be in place before PLNs can be successful (Hubers and Poortman, 2018). These conditions include: *focus*, *collaboration*, *individual/group learning* and *reflective professional inquiry*. In particular, however is the role of leadership in generating and supporting sustained change (e.g., see Harris and Jones, 2010). In the first instance, leadership is required of the networks themselves to enable them to function effectively. Second, it is also the role of school leaders to ensure that there is meaningful engagement by their teachers in network activity, and that this engagement can be purposefully mobilised to make a difference within their 'home' schools. Of these two aspects of leadership, less well understood are the actions school leaders might undertake to ensure meaningful engagement by their staff in PLNs. We contribute to the knowledge base in this area, therefore, by using our paper to examine this second key role.

2) The role of leadership in supporting PLNs

While it is typically teachers that engage in networked learning activity, it is school leaders who support them to so. This means the actions of school leaders are key to maximising the benefits to schools of participating in PLNs. School leaders have a substantive role in improving outcomes for children and young people (e.g. Marzano *et al.*, 2005; Robinson *et al.*, 2009). In fact, in terms of *within-school* factors, their impact is second only to teachers (Leithwood and Louis, 2012). School leaders are able to make a difference to teaching and learning though what are known as first and second order effects (Day and Sammons, 2013; Leithwood *et al.*, 2019). To begin with, school leaders can target first order variables. For instance, instructional leadership can be used to improve the quality of teaching and the nature of the curriculum that is delivered to students in the classroom (Robinson *et al.*, 2009; Tulowitzki and Pietsch, 2018). School leaders are also able to generate second order effects. Transformational leadership, for example, can be used to increase the commitment of others in the school in relation to specific first-order effects on learning (Day and Sammons, 2013; Robinson *et al.*, 2009). It is school leaders, therefore, who are best placed to instigate and coordinate the actions required to ensure school engagement with PLNs is beneficial since they can aim specific first and second order effects towards making meaningful two-way links between network and school. At the same time little is currently known regarding the specific leadership actions required to maximise the benefits to schools of their teachers participating in PLNs (Brown and Poortman, 2018). As a result, this paper reports on a study to investigate the effectiveness of leadership practices for one specific type of PLN: Research Learning Networks (RLNs).

3) Research Learning Networks

Research-informed teaching practice (RITP) refers to the process of teachers accessing, evaluating and using the findings of academic research in order to improve their teaching practice (Walker, 2017). Achieving RITP at a systemic level has become the focus of many school systems worldwide (Wisby and Whitty, 2017). In keeping with this focus, Research Learning Networks (RLNs) have emerged as a specific type of PLN designed to enable the roll out of new RITP at scale. RLNs operate by establishing one (or more) PLNs with participants from a number of schools, then using these participants to generate RITP as part of a series of network workshops. Participants then work with their wider school colleagues to embed these practices in their 'home' schools. By way of example, in the first iteration of the RLN model, 14 RLNs were formed, comprising 110 staff from 55 primary schools in England. Here it was intended that this networked approach would ultimately lead to the introduction of new practices amongst some 500+ teachers, benefitting some 13,000 students overall.

4) Research questions

An evaluation of the first iteration of the RLN approach by Rose *et al.,* (2017) suggested that the efficacy of the RLN's would be improved if school leaders better supported participants to engage with network workshops, as well as mobilise RITP with colleagues at their 'home' school. It would seem, therefore, that the RLNs represent a suitable case in terms of examining the role of school leaders in maximizing the benefits to their staff of engaging in PLN activity. Following from this, the specific research questions explored by the paper are as follows:

1. What leadership actions did school leaders undertake to maximize the impact of the RLN for their schools?
2. How effective were these actions?

With our subsequent intention being to explore any implications these findings might have for PLNs more generally.

5) Methodology

A case study approach was employed across one learning network; *the New Forest Research Learning Network (RLN).* The case study approach is used to understand an individual unit, be that a person, an organization or a community (Cohen *et al.*, 2007). In this study the participants within the RLN represent a specific definable and bounded unit of practitioners. The *New Forest RLN* itself comprises 21 staff from 8 primary schools situated in the New Forest area of England. In keeping with other RLNs, participants in the New Forest RLN comprised both senior leaders (i.e. school leaders) of participating schools as well as teachers considered to be *Opinion Formers*; this latter type of participant is defined as teachers not in formal leadership positions but who are often turned to by their colleagues for trusted work-related expertise and advice (see the first author's chapter in Brown and Poortman, 2018) for further details). Thus, while the choice of senior leaders as participants reflects their formal power to affect change in schools (Earley, 2013), the notion of Opinion Formers, derives from the idea that leadership as influence can be undertaken by more than just those possessing 'formal' responsibility (Ogawa and Bossert, 1995). It is hoped that the New Forest RLN will ultimately lead to change amongst some 70 teachers and some 1,470 students overall. This study focuses on the operation of the New Forest RLN from October 2017 to June 2018. In-depth semi-structured

interviews were held with all 21 participants following the fourth and final RLN workshop in June 2018. Detail on the characteristics of the respondents is set out in Table 1 below:

Table 1: Interviewee characteristics

Role	Number involved in RLN	Av years teaching	Av time in current post	Post grad qualification	Age range
Senior Leader	13*	23	9	5 (38%)	45-60 (av 49)
Opinion Former	9*	11	7	1 (11%)	37-43 (av 40)

*All respondents were female; no ethnicity data was collected

5.1) Data Collection methods and analysis: The purpose of the interviews was to examine the actions undertaken and policies developed by senior leaders to maximize the impact of the RLN within their school. Participants were also asked their perspectives on how effective these actions were perceived to be and potential improvements that could be made moving forward. Moreover, participants were asked to bring to their interviews impact data and policy-documents relating to their approaches (for example, observational or performance data). Following the methodology suggested by Wenger *et al.*, (2011), this data was used to triangulate their responses and provide a level of objectivity to their accounts.

All interviews were recorded. Once data from the recordings had been transcribed, they were analysed thematically by the first author in a dialogic with the impact data and policy documentation. Inductive analysis was initially used for categorising the responses, with codes allocated to individual turns of speech. Once all data was coded, relationships between codes were assessed and meso level codes were constructed from the aggregation of the initial codes until all of the initial codes could

be adequately explained. The same process was then undertaken to create macro level codes that served to organise the meso level codes (Lincoln and Gubba, 1985). To test the construct validity of the coding, the second author used the coding frame developed by the first author to deductively and independently code four interviews. The inter-rater reliability (Miles and Huberman, 1994) – i.e. the ratio of the total amount of agreement in the coding and the total amount of coded text excerpts – was 86%. This was deemed an acceptable percentage to claim reliability (Miles and Huberman, 1994). The coding structure that emerged from the analysis can be seen in Figure 1, below.

Figure 1: Coding structure following the end of project interviews

[insert Figure 1 about here]

6) Findings

As can be seen in Figure 1, actions undertaken by school leaders and Opinion Former participants to maximise the benefits to their schools of engaging in the PLN can be accounted for by six macro level codes: 1) Formalising RLN activity as a priority; 2) Keeping participating staff on track; 3) Time; 4) Informing non-RLN staff; 5) Providing 'How to' support; and 6) Whole staff engagement. The actions sitting within these codes are now explored in detail (with code references presented in *italics*). To further aid interpretation of the findings, Table 2 identifies which senior leaders and Opinion Formers belong to which school (where it can also be seen that both respondents and schools were anonymised through the use of pseudonym numbers and letters).

Table 2: Senior leaders and Opinion Formers by school

School	No of pupils on role (Sept 2017)	Senior leaders	Opinion Formers
'A'	179	#7, #8	#3
'D'	510	#11, #12	#7
'G'	69	#2	#8
'N'	171	#9	#2
'Q'	270	#5, #6,	#1, #6
'X'	266	#1, #3, #4, #10	#4, #5, #9

*'X'comprises of three federated schools: 'R'; 'S' and 'T'. Because they share an overarching executive school leader, for the purpose of the analysis they have been treated as one school.

6.1) Formalising RLN activity as a priority: The principal meso level code associated with school leaders' attempts to formalise RLN activity was *Incorporating RLN into existing policies and procedures*. Here approaches employed by school leaders comprised *making the RLN part of the school's School Improvement Plan* (or SIP); *including RLN activity in teachers' performance management targets*; and *engaging governors* with the RLN process. Beginning with the first of these, respondents from four schools ('A', 'D', 'Q' and 'X') all noted that their school linked engagement with the RLN to their SIP. For example, as noted by senior-leader #8: 'It is [part of our School Improvement Plan]. It will be next year as well' (with similar responses made by Opinion-Former #1, #6; senior-leader- #5, #7, #10). A principal reason for linking the PLN to the SIP is that doing so creates a clear focus on priorities relating to the work of the RLN, while also ensuring others see its value. The *absence* of RLN activity from the SIP was noted by senior-leader #2 who suggested that 'if this [engaging in the RLN] had been part of our School Improvement Plan we would have put more of an emphasis on it' and that 'it would have felt more than just a bolt-on [activity]'. Opinion-Former #2, also noted the negative consequences of not including RLN activity on the SIP, suggesting that other initiatives (that were in the SIP) could sometimes take priority.

The inclusion of RLN activity as part of performance management targets was noted by Opinion-Former #2, #5; and senior-leader #9 (schools ‘N’ and ‘X’). The benefits to this approach were observed by senior-leader #1: ‘Every teacher’s performance management target is also around it. We’ve had mid-term reviews and that’s [because of this inclusion in their targets, this has meant it has] pulled it back into focus for people’. At the same time, it is important that senior leaders recognise that there is value to RITP being treated as more than an immediate ‘quick fix’. In other words, there is a danger that should it be included as a performance measure, that engagement in RLN activity leads solely to instrumental-type foci involving ‘what works’ type research with narrow outcome measures. Senior leaders did however seem to recognise this. For instance, as senior-leader #10 argued that ‘I think you have to commit to [a long time frame] to do this, with real focused work… it's not a year process’. What’s more, Opinion-Former #5 suggested that in her case (school ‘X’) such recognition did exist: ‘Sometimes it takes a long time to really get into something. This is very important and the base of everything we are building on. But I think that's reflected when we do have performance management [reviews]’.

Finally, schools ‘A’ and ‘Q’ also noted that they had attempted to formalise their engagement in the RLN by involving school governors: ‘Certainly my governors have been really useful, so I’ve been reporting back to the governors. So I’ve got [a meeting with] four governors next week, and, you know, we’ll do the whole thing, showing the poster and everything to them, and showing it all, which is really nice, because that shows them that learning continues’ (senior leader #7). Although no indication was given as to the effectiveness of this approach in keeping the school on

track, the advantage of including governors (who have strategic oversight of the school) could be seen from another set of comments relating to sustainability. In particular, the RLN was taking place during a period of budget cuts: ‘Unfortunately… it's come off the backdrop of a funding cut really hitting every school this year’ (senior-leader #7). Similar responses were provided by senior-leader #8, #9 and Opinion-Former #2, #3, #4 and #5. As such, attaining governor support may provide an effective strategy for guaranteeing that budget and time resource can be allocated to RLN activity to ensure that schools can continue to participate.

6.2) Keeping participating staff on track: In terms of *keeping participating staff on track*, three meso level codes were again identified from the data. The first, employed only by school ‘Q’, involved the *empowering of staff to engage in the process*, by *providing them with the freedom and support to maximize impact*. In particular respondents at school ‘Q’ described how their senior leader provided the autonomy for them to innovate while also offering support in relation to the development and scale up of practices when required: ‘I think [school leader’s] focus, has allowed us to take things on board but she is also there for us as a person we can just run things by strategically. That’s empowering… and critical’ (senior-leader #5). In a sense this represents a trust laden, distributed approach to keeping staff on track: in this case RLN participants are given freedom and responsibility with the expectation that they will then self-manage what needs to be done. It was also suggested by Opinion-Former #6 that this approach meant the RLN and related activity was constantly top of mind because participants felt the responsibility to deliver, and so repay the trust invested in them. As a consequence: ‘ We [regularly] meet away from school, so we

can really have dedicated thinking time….because we really want to push forward with it (the intervention) next year" (Opinion-Former #6).

In other schools, approaches to keeping participants on track included *checking in on progress* through both *formal and informal meetings*. In terms of the former, senior-leader #7 outlined how she and her participants 'planned days… and what we did, was, we divvied things up, so we had a quick chat together about various things. We'd come together, and then we'd all agree what we were all going to be doing'. In terms of the latter (i.e. *informal catch-up sessions*), it was noted that 'It's like in the back of your mind, and [then we engaging in] sort of chatting, but yet formally doing it as well" (Opinion-Former #1). These meetings can also be reinforced through the use of *ambient reminders*. For example, the use of *posters and boards in staff rooms*. Sometimes these posters and boards reflected the School Improvement Plan targets: 'We've got a strategic plan board in our staffroom with our school improvement indicators on and we've made sure actually that our projects are reflected in that' (senior-leader #1).

6.3) Time: The predominant focus of school leaders in terms of *time* was how to free up resource to maximize impact. Not having enough time and competing time priorities have been noted elsewhere as being substantial barriers to teachers to engaging with research/ ensuring RITP can be a meaningful way of life within a school (e.g. Galdin O'Shea, 2015). It was also reflected in this study with a number of respondents noting that time to engage in the process was an issue (e.g. senior-leader #8, Opinion-Former #2; #3; #4; #5 and #8). Here approaches taken by school leaders to deal with this issue varied significantly. For example, school 'Q' had a *dedicated*

member of staff to assist the process. In school N, meanwhile, time was provided to enable RLN participants to *establish communities to support the project*. In particular both senior-leader #9 and Opinion-Former #2 noted that time for four twilight (i.e. after school) professional development sessions had been dedicated to the project, enabling these participants to establish and run within-school Professional Learning Communities. The purpose of these communities was to ensure whole staff engagement with the project, which could then lead to detailed problem analysis and the collaborative development of new approaches to teaching and learning. In other schools, standard meeting and existing preparation time was simply reallocated. For instance, participants from school's 'A' 'D', 'G' and 'X' noted that they were allocated time to engage in RLN and brokerage activity as part of regular staff meetings and within statutory preparation and assessment (PPA) time.

6.4) Informing non-RLN staff: In terms of informing non-participating teachers, the notion of *starting small* was associated with RLN participants wanting to wait until they thought the time was right for full staff involvement (in Figure 1 this is micro code *waiting until the time is right for full involvement*). For instance this approach typically stemmed from participants wanting to fully understand which problem they had decided to address and how before completely involving others: 'We shared a little bit here and there, but we hadn't really gone into depth because what we didn't want to do was share it then change route…we've kind of zigzagged about a thousand times within the course of the year' (Opinion-Former #6).

A number of potential benefits were identified with the 'start small and wait before sharing' approach. For instance, it was felt by senior-leader #10 that this way of

working ultimately makes it easier to persuade staff to adopt the new practices since you are sharing with them a more tried and tested approach to teaching and learning. As suggested by Opinion-Former #6, *starting small* could also occur alongside *providing more general updates on what is happening, when and why*; and participants argued that this approach was likely to have a positive longer-term outcome because it enabled staff to get gradually used to potential changes to current practices before formally introducing those changes.

Once new practices had been shared, the idea is that staff should change their practices, for example: 'Now the teachers are aware of what is required we want them to be modelling their 'resilience skills' to the children' (Opinion-Former #1). At the same time a certain sense of realism was exhibited in relation to the change process. In particular in terms of getting all staff to engage: 'There were challenges in as much…[one] member of staff, our barrier….she is a presence in the school, [so we have to find ways of managing that] (senior-leader #9).This then begs the question as to whether there is a more effective way to mobilise new practices that better fosters their take-up. Two possibilities here emerged from our analysis. The first was the *provision of 'how to' support*, the second the use of *within-school Professional Learning Communities.* These two alternative approaches to brokerage are set out below.

6.5) Providing 'How to' support: The notion of *providing 'how to' support* involved RLN participants modelling and explaining new practices to non-RLN staff in order to *provide bespoke support to individual teachers who need to understand the practices in question.* For school 'A' this occurred alongside *starting small* and the

more general informing of non-RLN staff (*providing updates on what is happening, when & why*) and was designed to ensure that specific teachers could be instructed and supported in how to use the practice. Likewise participants in school 'N' noted that: 'I take the lead…we set them [staff] tasks, practical tasks and things to do…and given them some research well to sort of unpick (Opinion-Former #2).

6.6) Whole staff engagement: Opinion-Former #2 observed that following the RLN workshops, they and senior-leader # 9 held whole staff twilight sessions to continue the learning within-school. These sessions involved looking at research and deciding which practical actions to pursue and how. Although this approach was not explicitly referred to by Opinion-Former #2 as *using within-school Professional Learning Communities*, the nature of these sessions seemed to mirror a number of the characteristics of effective Professional Learning Communities as spotlighted by *Stoll et al.*, (2006). For example: '[The twilight sessions] opened conversations for us. And they also [involved us] reflecting on our own practice, and [consider how] to engage in change' (Opinion-Former #2). Furthermore, these sessions were facilitated and involved the use of exercises to encourage reflection (sometimes mirroring the activity of the RLN sessions). In between the sessions, staff would then trial and refine practices that had been developed: 'So they've been trialling - they had to choose a child within their team, and they were trialling interventions to work on attendance… [with] target children' (Opinion-Former #2).

Again, mirroring the characteristics of the most effective PLCs, developing trust and the ability of people to expose themselves to risk has been key to effective whole staff engagement: 'I think because we've had those lines of communication, people feel

more confident to express themselves and express when they don't feel so confident (senior-leader #9). What's more, these sessions were very much regarded as 'whole school' in nature: 'The teachers, TAs, and even the office staff and admin staff are involved in these meetings' (Opinion-Former #2). One perceived impact of the within-school PLC approach was that it served to overcome staff's perceptions that 'this is just another initiative that won't last', thus ensuring that it was taken seriously and given sufficient focus: 'I think because we had that cycle of coming to you and then doing in school twilights, people- particularly our teaching assistants [understood that they should come on board]' (senior-leader #9). This was therefore seen to maximise impact of the approach.

7) Exploring the actions of individual schools

It is also instructive to examine the combined activities undertaken by individual schools, as well as the nature and extent of the impact they achieved from participating in the RLN project. Although we recognise that marrying interview data with the impact data provided by schools doesn't enable us to establish a definitive 'cause and effect' relationship between the actions of school leaders and teacher and student outcomes for each set of practices developed, we do feel that analysing the data in this way can provide interesting insights into where school leaders might best focus their efforts. As such we have used the data provided by schools to explore whether some approaches to supporting a two-way link between network and school have been more successful than others in terms of: 1) supporting teachers to engage in reflective enquiry; 2) fostering changes to teacher knowledge; 3) fostering changes to teaching practice; and 4) whether student outcomes have improved. Our findings for

schools are set out in two tables, below. Table 3 shows the approach each school took; Table 4 the impact each school has attributed to the RLN approach.

Table 3: The actions undertaken by individual schools

School	Formalising: Maintaining a focus on PLN activity once back in school	Prioiritising: Providing resource to support engagement	Mobilising PLN activity
A	Formalising PLN activity as a priority through Incorporating [it] into existing policies and procedures, specifically by Making the PLN part of the school improvement plan, and by engaging with school governors.	Allocated time to engage in brokerage activity as part of standard meeting and planning, preparation and assessment (PPA) time.	1.Starting small and Informing non PLN staff by Providing updates on what is happening, when and why. 2. Providing 'How to' support by Modeling and explaining new practices and Providing bespoke support to individual teachers who need to understand the practices in question.
D	Formalising PLN activity as a priority through Incorporating [it] into existing policies and procedures, specifically by Making the PLN part of the school improvement plan also through Including RLN activity within participants' performance targets, and by engaging with school governors.	Allocated time to engage in brokerage activity as part of standard meeting and planning, preparation and assessment (PPA) time.	1.Starting small and Informing non PLN staff by Providing updates on what is happening, when and why. 2. Providing 'How to' support by Modeling and explaining new practices and Providing bespoke support to individual teachers who need to understand the practices in question [undertaken as part of a trial]
G	Not incorporated into school improvement plan or participants' performance targets. RLN participants did engage with school governors but for information only since governors aren't	Allocated time to engage in brokerage activity as part of standard meeting and planning, preparation and assessment (PPA) time.	Informing non PLN staff by Providing updates on what is happening, when and why.

	responsible for monitoring activity that isn't on the SIP.		
N	Formalising PLN activity as a priority through Incorporating [it] into existing policies and procedures, specifically by Including RLN activity within participants' performance targets.	Providing time to support the process by Freeing up resource to maximize impact, specifically to facilitate the Establishing [of] communities to support the project.	Facilitated Whole staff engagement through Using within-school Professional Learning Communities, specifically by Establishing communities to support the project. This led to the Whole school collaboratively developing and employing an approach to improve children's aspirations.
Q	Formalising PLN activity as a priority through Incorporating [it] into existing policies and procedures, specifically by Making the PLN part of the school improvement plan; also by Engaging with school governors.	1) Providing time to support the process by Freeing up resource to maximize impact, realised by Having a dedicated member of staff to assist the process. 2) Keeping participating staff on track through Empowering staff to engage in the process and by Providing freedom and support to maximize impact.	Informing non PLN staff by Starting small and Waiting until the time is right for full involvement. This led to the Sharing of desired practices to encourage their adoption.
X	Formalising PLN activity as a priority through Incorporating [it] into existing policies and procedures, specifically by Making the PLN part of the school improvement plan and by Including RLN activity within participants' performance targets.	1) Allocated time to engage in brokerage activity as part of standard meeting and planning, preparation and assessment (PPA) time. 2) Keeping participating staff on track by Checking in on progress via formal	Informing non PLN staff by Starting small and Waiting until the time is right for full involvement. This led to the Sharing of desired practices to encourage their adoption.

		meetings and informal meetings as well as the use of ambient reminders such as posters and boards in staff room.	

Table 4: Example impact data for each school

School	Impact code	Example data
A	Engage in reflective enquiry to understand issues relating to teaching and learning	'[It has been helpful] to do something using the research with us because I think it is really good to have those conversations and pinpoint areas and look into and work out why and what we can do' (opinion former 3).
	Improved teacher knowledge	The 'impact document' provided by school 'A' indicated that improved teacher knowledge includes 'the importance of physical development'; the importance of effective partnerships with pre-school; and the need for effective parental engagement.
	Development of new and enhanced practices	'It's not "job done", but [the process has] made us look at our practice and ….we have enhanced it. It made ours better' (senior leader #7)
	Changes to student outcomes	The 'impact document' provided by school 'A' suggests that the numbers of students not on track with their writing had over the 2017/18 academic year reduced from 19 to 8 in year R, from 16 to 14 in year 1 and from 14 to 10 in year 2.
D	Understanding how to engage effectively with research	'Understanding how we could begin to use the research [on metacognition and spelling]' .
	Engage in reflective enquiry to understand issues relating to teaching and learning	'[The process provided us with opportunities to] shape our thinking….time together was valuable, just the way you got to continually reflect on where we'd got so far, what needed to happen next, that kind of constant reflection about what you're doing'. (senior leader #11).

	Improved teacher knowledge	The 'impact document' provided by school 'B' suggests the new ways to teach that participants benefitted from included 'phonological', 'morphological' and 'orthographic' approaches.
	Development of new and enhanced practices	'We have started trialing our [new approach] but only in a couple of classes' (senior leader #11).
	Changes to student outcomes	The 'impact document' provided by school 'B' indicates that there was an improved accuracy in spelling in the trial classes.
G	Understanding how to engage effectively with research	'[More generally] we have used research to now inform a number of areas around the school… for example we did some work on spelling… normally we would have said this is what we are doing with spelling… this year… we found some research papers and we shared them with staff. And that started our discussion regarding spelling and the things we needed to do to improve' (senior leader #2).
	Engage in reflective enquiry to understand issues relating to teaching and learning	'We've become a lot more reflective, especially in refining the problem we thought existed at the start [of the RLN process]' (opinion former #8).
N	Understanding how to engage effectively with research	'I think the successes were, beginning to kind of really unpick sort of data and research, and kind of refresh my mind with that' (opinion former #2).
	Engage in reflective enquiry to understand issues relating to teaching and learning	'It is just having that time just to sit and actually really think about your school, your group of children, what works and what hasn't. That's just so valuable these days because [of time issues]' (senior leader #9); ' ….it [helped] us sort of reflect on our own practice, and again sort of change' (opinion former #2)
	Improved teacher knowledge & Development of new and enhanced practices	Senior leader #9 suggested that the biggest impact from school 'N' was increasing all staff's understanding about the need to raise both their and children's aspirations; to collaboratively develop a research-informed approach to raising aspirations; and to roll this approach out across the school.
	Changes to student outcomes	The 'impact document' provided by school 'N' highlights an average increase in attendance of six percent amongst the students in the trial.

Q	Understanding how to engage effectively with research	'The biggest thing really is- it's important I think for us, as educators, to know how to locate and find and interpret research. I think that, for me, has been the biggest thing…. we can now use our research as a basis for change…'. (senior leader #5).
	Engage in reflective enquiry to understand issues relating to teaching and learning	'So I think for myself professionally, I think I have learnt so much about sort of stopping, reflecting, questioning my practice really and considering the impact of what I am doing on the children as far as you know, thinking out of the box' (opinion former #1).
	Development of new and enhanced practices	The 'impact document' provided by school 'Q' suggests that ideas for new practices include the 'teaching of reliance habits alongside vocabulary', 'getting teachers to model and celebrate mistakes' and 'getting parents on board'.
X	Understanding how to engage effectively with research	'I think we're finding it easier to find research….. There was a lot of information out there, so we felt happier in being able to find reading and we've found different things and we've moved our enquiry on because of that. That was easier, because I know previously we'd found that quite challenging, trying to find the right kind of article for things' (senior leader #1).
	Engage in reflective enquiry to understand issues relating to teaching and learning	'We've really built on our understanding of where we're going and how to follow through an enquiry' (senior leader #1); 'There's a lot more professional dialogue… in the staff room' (opinion former #4).
	Improved teacher knowledge	The 'impact document' provided by school 'X' illustrates that RLN participants now understand that children learn most effectively when applying 'mastery strategies' to problem solving.
	Development of new and enhanced practices	The 'impact document' provided by school 'X' shows that RLN participants are now using 'guided problem solving' strategies as well as giving students independence and time to use these strategies.
	Changes to student outcomes	'I think the learners, their attitudes to learning is their greatest success because they're much more willing to challenge themselves, which makes challenging them much easier. Less fearful of failure… the children [are] more engaged in their learning' (opinion former #4).

[insert Table 4 about here]

7.1) School A: In light of the various budget cuts noted in section 6.1, the leader of school ‘A’ was determined that the RLN process achieved benefit for her school. A key part of this approach was formalising the school’s engagement in the RLN by including it on the School Improvement Plan. Doing so meant that engagement became a focus and a target that needed to be supported. School A was, however, also only one of two schools to ensure that school governors were aware of their participation, meaning they would also focus on and monitor progress. In terms of prioritising the RLN by providing time to staff to engage, school ‘A’ followed the pattern undertaken by most other schools by allocating time from existing meetings and/or staff PPA time to help participants both undertake the tasks required by the RLN, as well as engage in knowledge brokerage activity. What is key however is that senior-leader #7 noted how she ensured RLN staff got the most from this time. Specifically, the work was planned for and allocated, and any tasks identified were provided owners who were charged with delivery. In a sense, therefore, this aspect of pedagogic leadership provided an alternative to the approach undertaken by schools ‘N’ and ‘X’ where a more top down model was utilised: i.e. performance management targets to encourage participants to self-organise and achieve what was required. It was also an approach that seemingly fostered partnership between senior leader and Opinion Former participants.

A further key difference between school ‘A’s approach to maximising the impact of the RLN and that of the other schools was the deliberate use of providing ‘how to’ support to non-RLN staff who needed to understand the practices being developed. In particular by modelling and explaining new practices in order to enhance

understanding. For school ‘A’ this occurred alongside their *starting small* and the more general informing of non-RLN staff in the school, by providing updates on what is happening, when and why. The aim of this approach was to ensure that, for the specific teachers who needed to know more about the practices in question, they could be instructed and supported to engage with such practices effectively. This leadership approach could also be considered instructional in nature, albeit a form of distributed instructional leadership (e.g. see Hairon and Goh, 2015), since the modelling of practices was undertaken by all participants. Finally, in terms of impact, comments by participants suggest that they were now able to engage in reflective enquiry to understand issues relating to teaching and learning and as a result had enhanced knowledge of the problem in question. In terms of impact at the level of the school meanwhile, it can be seen in Table 4 that participants could identify clear differences for their students. This is both reflected in the qualitative comments but also in the impact data provided, which indicated a reduction in children not on track to meet their writing targets across year groups.

7.2) School ‘D’: School ‘D’ was strong on approaches to formalising participants’ engagement in the RLN. In particular, they were the only school that incorporated the RLN into their school improvement plan, included RLN activity as part of participants’ performance targets AND engaged with school governors. This approach thus served to ensure there was a focus at the level of the school, an external focus, and that participants were aware of the need that they themselves should prioritise their engagement with RLN activity.

Like school ‘A’, school ‘D’ employed an approach to brokerage of starting small and then providing ‘how to’ support and advice to key staff once key practices had been developed. Unlike school ‘A’ however, only a small number of potentially relevant teachers were selected to engage with the practice in question (with the intention that a whole school approach would be undertaken from September of the following year). Similarly, like school ‘A’, school ‘D’ allocated time from existing meetings and/or staff PPA time to help participants both undertake the tasks required by the RLN and to allow them to engage in knowledge brokerage activity. These approaches appear to have been successful. As can be seen in Table 4, teachers at school ‘D’ report the full gamut of impact, ranging from participant level improvements, such as understanding how to engage effectively with research, to changes in teacher knowledge at a participant level, trialling new teacher practices and student outcomes (albeit in the trial classrooms only).

It would seem therefore that the use of *how to support* directed at relevant teachers, at least in the schools that employed it (i.e. ‘A’ and ‘D’), can be associated with positive changes in student outcomes. Potentially therefore this forms an effective form of brokerage (Rogers, 1995). At the same time there are possible issues with this approach. First it doesn’t necessarily tap into the wider experience and knowledge of colleagues when diagnosing the problem or when developing solutions to it. As a result, this means that more effective/impactful solutions might potentially exist (Spillane et al., 2010; Spillane and Sherer, 2004). Furthermore, schools employing this approach also need to ensure that *everyone* who needs to know about the new practices are actively included in the process (Hairon and Goh, 2015). Particular attention thus needs to be given to teaching assistants who can be heavily involved

with specific groups of pupils but can often be omitted from knowledge brokerage activity (Brown, forthcoming).

7.3) School 'G': School 'G' used the RLN process to consider and reconsider the problem they were facing and to really focus on what they wanted to do. Participants admitted that 'we hadn't got as far as we wanted with the project… and we haven't done the intervention, but we have come a long way in our thinking.' At the same time, they suggested that 'we are now ready to trial something in September [2018] and we think our approach will be better for this' (senior-leader #2). Perhaps one reason for this lack of progress was the lack of priority to engage in the RLN process afforded by the school. In particular, RLN activity was not incorporated into school 'G's school improvement plan, nor in participants' performance targets. And while RLN participants did engage with their school governors, this was solely for the purposes of providing information. The absence of RLN activity from the SIP meant that less emphasis was placed on it, not only by the participants themselves but also by senior leaders and their colleagues. Other priorities would therefore often take over, meaning progress was slow. At the same time, as with most other schools, time – in the form of standard meeting time and PPA time – was allocated to enable participants to inform non-PLN staff by providing updates on what was happening, as well as for participants to engage in RLN activities. These updates were limited and sporadic in nature, however. In terms of impact, given the lack of priority placed on their participation, it seems little wonder that difference occurred solely at a participant level in terms of an improved ability to engage effectively with research or for participants to engage in reflective enquiry.

7.4) School 'N': School 'N' was unusual in a number of ways. First, school leaders did not incorporate the RLN activity into the SIP but did include it within participant's performance targets. Second, a strong time commitment was provided by the school. Specifically, time was provided to facilitate the establishing of a within school Professional Learning Community to support the project. Thus, in addition to the four whole staff days used by senior-leader #9 and Opinion-Former #2 to engage in the RLN workshops, a further four twilight sessions of approximately two hours each were provided to enable these participants to engage in a whole-school collaborative approach to developing and employing an intervention to improve children's aspirations and school attendance.

What is interesting about the approach undertaken by school 'N' is the potential interplay between RLN and PLC, which involves the two-way flow of new knowledge and practice development ideas, as well as knowledge relating to the success of their enactment. For instance, understanding the nature of the problem (although not in this case) could potentially start in the PLC with this understanding then shared with the RLN to help others better understand the issues in hand. As a next step, new knowledge relating to the problem and possible solutions to it is gained in the RLN and then can be shared in the PLC where this can be further expanded through learning conversations; the PLC can also act as a site of practice development and of trial, refinement and rollout, with the understanding of success (or lack there-of) then shared with the RLN to aid the learning of others (Kaser and Halbert, 2017). Participants suggested that their approach had led to improved teacher knowledge amongst all staff, along with the collaborative development of new and enhanced practices by staff within the school, who were now engaging in the trialling of these.

What's more, initial data suggests that these interventions are having an impact on student outcomes (see Table 4). At the same time, the failure to include the RLN in the School Improvement Plan had, on occasion, meant that other priorities could take over, slowing down the pace of implementation (hence school 'N' still being at trial stage at the time of the interviews).

7.5) School 'Q': School 'Q', like school 'N', was unusual amongst participating schools in that participants deliberately used most of the RLN cycle to reflect and fully examine the problems of practice and learning they wanted to address. There was no necessary expectation from senior leaders that by the end of the process a new teaching strategy *had* to be developed and put in place, or that there had to be material demonstrable impact. Rather there was a value-laded and ethically-rich desire on the part of their senior leader that staff get the most from the process by being afforded the time to think and really consider what they wanted for their children and how best to achieve this. This ethos was reflected in the way the RLN activity was both formalised and prioritised. In particular the senior leader of school Q could be seen to be (and was recognised by participants as) *empowering staff to engage in the process*. Specifically, she provided her RLN team with the *freedom and support to maximize impact*. As noted in 6.2, RLN participants felt that they had the autonomy to approach their engagement with the network/network related activities as they wished, that they were encouraged to engage deeply and without a sense of any artificial deadline to provide tangible outcomes. But participants were also supported, since they were able to seek senior leader support at any time. Furthermore, the senior leader of school 'Q' also fully reinforced engagement in the RLN by allocating substantive time resource to the process. In particular, the freeing up of resource to maximise impact was

realised by there being a dedicated member of staff to assist the process. At the same time, this approach to engagement was formalised since it formed part of the SIP and school governors were also informed. As such, the freedom, autonomy, and capacity for school 'Q's participants to reflectively engage became enshrined as policy, and so protected.

Yet there is clearly room for improvement in school 'Q's approach. In particular, in terms of how participants have attempted to mobilise the work of the RLN within the school. Like a number of others (i.e. schools 'A', 'D' and 'X'), school 'Q' employed a *start small* approach whilst also providing updates on what is happening, when and why to keep staff abreast of what was occurring within the RLN. Once practices had been developed, however, school 'Q's approach to scale-up was a more general sharing of these practices with the expectation that non-RLN staff would then engage with and adopt them. As noted in the interview comments, this approach was not universally successful, with some staff (referred to by senior-leader #5 as 'laggards') seemingly resisting these new changes (Rogers, 1995).

As such, it seems unsurprising that, in this first year of the RLN, school 'Q's impact was predominantly at the participant level. Participants clearly knew how to engage effectively with research; they also felt confident in engaging in reflective enquiry to understand issues relating to teaching and learning. Nonetheless it seems probable that, should it continue, school 'Q's approach is likely to lead to long-term sustained impact from the RLN process, particularly if approaches to mobilisation are enhanced.

7.6) School X: Finally, school ‘X’ was strong on formalising RLN, ensuring it comprised part of the school improvement plan as well as participants’ performance targets. As with school ‘D’, despite forming part of the performance monitoring of participants, both senior leader and Opinion Former participants believed that school leaders fully understood the nature of enquiry-led school improvement with its potential for ‘false starts’ and ‘dead ends’ as well as the need to fully and meaningfully investigate potential issues and their solutions. The inclusion of the RLN in performance targets was thus seen as a useful way to keep it top of mind. Interestingly, school ‘X’ displayed the most variety in terms of how participants were kept on track, with approaches here including the use of posters and research boards in staff rooms: i.e. ambient approaches to reminding staff about the RLN and associated activity. It was suggested that informal meetings and chats (i.e. informal professional discourse) played a big role in keeping the RLN top of mind, although again these chats seemed less organised than those undertaken by school ‘A’. Time for brokerage was also, as with other schools, typically carved out of PPA time and formalised meetings. As with school ‘Q’, a potentially less effective approach to brokerage was employed; this involved a more general sharing of new practices with staff following a process of *starting small* until the desired practices had been fully developed. Again, it can be seen from Table 4 that impact was correspondingly limited: although participants could list the full gamut of changes resulting from the process, this impact was limited to the participating teachers themselves and their students, rather than widely throughout school ‘X’.

8) Conclusions

In this final section of the paper we now address the two research questions guiding our study, as well as explore both the limitations of, and the implications emerging from, our work.

8.1) What leadership actions did school leaders undertake to maximize the impact of the New Forest RLN for their schools?: In examining how senior leaders sought to support and maximise the impact to their school of engaging in the New Forest RLN, we have been able to identify specific leadership actions. School leaders targeted first order variables, such as formalising RLN involvement by including it in the school improvement plan, engaging governors to monitor progress and provide financial support (e.g. for teacher release) and embedding the process in teacher's performance management targets. Such instructional leadership actions were important in influencing the conditions that can have a direct impact on the quality of teaching and impact on pupils (e.g. see Robinson *et al.*, 2009). Transformational leadership actions, such as prioritising RLN activity predominantly through the allocation of time resource through staff meetings, PPA time to attend RLN workshops and opportunities to mobilise knowledge to non RLN staff was used to increase the capacity of participants in the RLN to produce first order effects on learning. As an exemplar of these approaches, School N's adoption of a within school PLC ensured a whole school collaborative approach could be developed; and this inter play between in school PLC and RLN represented the coordination of first and second order effects which established meaningful two-way links between the network and their school.

8.2) How effective were these actions?: We were also able to consider the effectiveness of school leader's actions in maximising the benefits of their school's involvement in the New Forest RLN. For instance, as can be seen in table 4, across all schools it could be seen that there was a level of change at least at the participant level; with all teachers reporting an enhanced ability to engage in reflective inquiry to better understand issues relating to teaching and learning. Some schools ('D', 'G', 'N', 'Q' and 'X') also reported an improved understanding in terms of how to engage effectively with research. What's more there were also positive outcomes at a school level with schools' 'A', 'D', 'N' and 'X' all suggesting positive changes at the pupil level.

8.3) Limitations and implications for the practice of PLN's: At the same time, one limitation of this work is the duration of our study, which lasted just lasting one academic year. Key to effective PLNs is their ability to sustain over time, but networks can only be considered effective if they also serve to sustain change over time. Specifically, the notion of sustainability in relation to PLNs should be regarded as a function of whether schools' engagement in PLN activity results in lasting school-wide changes in school policy and practice (Hubers and Poortman, 2018). Moreover, that these changes lead to beneficial outcomes for both teachers and pupils. From our analysis above (and specifically Table 4) it is clear that the first year of the RLN process is beginning to lead to some change that might be considered sustainable (i.e. to change that is both long lasting and beneficial in nature). In addition, we also note that in three schools ('A', 'D' and 'N') the participants involved have been active change agents (Rogers, 1995). This is because, rather than simply sharing new knowledge and practices, they have been active in helping

teachers understand how to engage with and utilise them ('A' and 'D'); or have sought to engage in the co-creation of new practices by linking the RLN to a within-school professional learning community (school 'N'). Hubers and Poortman (2018) argue that acts of educator 'agency', such as these, are also drivers of sustainability. This is because, when teachers with connections to PLNs (whether participating in the PLN or not) are continuously working towards further improving a learning network's nascent, initial outputs, these outputs then have a greater chance of subsequently being used in the long-term. This stands in contrast to situations when teachers are required or expected to act simply as passive followers or implementers.

A further limitation is that this case study is predominantly qualitative in nature, meaning we can't definitively say – nor would it be meaningful to do so – that particular schools made quantifiably more impact than others following their engagement in the PLN. Our cross-case analysis of the interview data does, however, enable us to spotlight three key areas that are required if school leaders are to maximise the impact to their schools of engaging in Professional Learning Networks. This is because, as can be seen in Table 3, emerging from the data is the need for school leaders to effectively *formalise*, *prioritise* and *mobilise* the relationship with the RLN into their school. In other words, school leaders need to first formalise a school's and teachers' participation in the RLN to ensure that it remains a key focus of the school and that its importance is recognized. Second, school leaders also need to prioritise engagement to ensure adequate resources exist to allow the work of the RLN to get done. Finally, there is a need for school leaders to enable new knowledge and practices to be mobilised effectively to ensure these are adopted and employed thus ensuring their impact is maximised across the school as a whole.

Of these three roles, extant literature suggest that formalising and prioritizing are clearly tasks that school leaders already undertake on a day-to-day basis in relation to a range of initiatives and demands they engage in and face (e.g. see: Day and Sammons, 2013; Leithwood *et al.*, 2019; Marzano *et al.*, 2005; Robinson *et al.*, 2009). To suggest they do so in relation to engaging with PLNs is thus compatible with existing leadership strategies and actions as relates to leading change in schools (e.g. Fullan, 2001a, 2001b; Hargreaves and Shirley, 2012; Kotter, 1996). Key here then is that school leaders understand the need to ensure that having schools participate in PLN activity will only be effective if such participation is given relatively high status compared to other initiatives, as well as being appropriately prioritised in terms of resource allocation. This can be achieved through including PLN activity on the School Improvement Plan and by ensuring adequate meeting and PPA time is allocated to enable participants to undertake PLN activity while back at school. Mobilisation on the other hand appears to be a relatively new idea for school leaders, possibly accounting for the myriad of ways in which it was approached (Briscoe *et al.*, 2015; Brown, forthcoming; Stoll *et al.*, 2015]. In other words, although formalisation, prioritisation and mobilisation would seem to operate as an interdependent triad, mobilisation is the element of this triad which school leaders appear to need most support to get right; with this need yet to be reflected in leadership research literature.

The implications of this new understanding for school and system leaders is that it is imperative that school leaders actively consider how best mobilisation should take place for all key relevant activity (in this case linking the RLN to the school). Having

decided whether mobilisation should be achieved through more general brokerage or via the creation of a PLC, school leaders then need to engage with best practices in these areas to ensure mobilisation occurs as effectively as possible. At the same time, further insight emerging from this work is that suitable time-resource and instructional leadership needs to be dedicated to helping mobilisation happen. In other words, not only do school leaders need to know about effective brokerage, they also need to work with staff to ensure PLN participants both understand and can engage in it. School leaders may also wish to consider whether within-school PLCs or types of 'how to' support are explicitly detailed on the SIP as the way in which links are made between PLNs and PLCs. Finally, as a consequence of the importance we feel it is merited, we also argue that supporting mobilisation should be considered an additional formal function of leaders. Correspondingly, we finish by asking the question: given its relative importance to operating in the self-improving school system, is knowledge mobilisation something that should be now added to the curricula of educational leadership programmes as a compliment to the current emphasis and on managing change?

References

Armstrong, P. (2015) *Effective partnerships and collaboration for school improvement; a review of the evidence.* London: Department for Education.

Bauman, Z. (2012) Liquid Modernity, (Cambridge, Polity Press).

Bourdieu, P. (1986) The forms of capital, In J.G. Richardson (Ed.), Handbook of theory and research for the sociology of education (New York, Greenwood), pp. 241–258.

Boylan, M. (2018) Enabling adaptive system leadership: Teachers leading professional development, Educational Management, Administration & Leadership, 46, 1, pp. 86-106.

Briscoe, P., Pollock, K., Campbell, C. and Carr-Harris, S. (2015) Finding the Sweet Spot: Network Structures and Processes for Increased Knowledge Mobilization, Brock Education Journal, 25, 1, pp. 19-34.

Brown, C. (2018) Research Learning Networks: A case study in using in using networks to increase knowledge mobilisation at scale, in: Brown, C. and Poortman, C. (Eds) *Networks for learning: effective collaboration for teacher, school and system improvement*, (London, Routledge).

Brown, C. (due 2020) *The Networked School Leader: How to improve teaching and student outcomes using learning networks* (London, Emerald).

Brown, C. and Poortman, C. (Eds) (2018) *Networks for learning: effective collaboration for teacher, school and system improvement*, (London, Routledge).

Castells, M. (2010) The Rise of the network Society (Chichester, Wiley-Blackwell).

Cohen, L., Manion, L., & Morrison. K .(2007). *Research Methods in Education*, (3rd ed.). London:Routledge.

Day, C. and Sammons, P. (2013) Successful leadership: a review of the international literature (Reading, CfBT Education Trust).

Dogan, S., Adams, A. (2018). Effect of professional learning communities on teachers and students: reporting updated results and raising questions about research design. *School Effectiveness and Improvement,* 29,(4), 634–659. 10.1080/09243453.2018.1500921

Earley, P. (2013).*Exploring the school leadership landscape: changing demands, changing realities*. London: Bloomsbury.

Fullan, M. (2001a). Leading in a culture of change, (San Francisco, Jossey-Bass).

Fullan, M. (2001b) The New Meaning of Educational Change (3rd ed), (New York, Teachers College Press).

Galdin-O'Shea, H. (2015). Leading 'Disciplined Enquiries 'in Schools. In C.Brown(Ed.), *Leading the Use of Research & Evidence in Schools* (pp.91-106). London:IOE Press.

Hairon, S. and Goh, J. (2015) Pursuing the elusive construct of distributed leadership: is this search over? Educational Management & Leadership, 43, 5, pp. 693-718.

Hargreaves, A., and Shirley, D. (2012) The fourth way. The inspiring future for educational change, (Thousand Oaks, CA, Corwin Press).

Harris, A., and Jones, M. (2010). Professional learning communities and system improvement. *Improving Schools*, 13, (2), 172-181. 10.1177/1365480210376487

Hubers, M. D. and Poortman, C. L. (2018). Establishing Sustainable School Improvement through Professional Learning Networks, in C.Brown, & C.Poortman (Eds.) (2018) *Networks for learning: effective collaboration for teacher, school and system improvement* (pp.194-204).London: Routledge.

Kaser, L., & Halbert, J. (2017). The spiral playbook: Leading with an inquiring mindset in school systems and schools. *Canada: C21 Canada*.

Kotter, J. (1996) Leading Change, (Boston, MA, Harvard Business School Press).

Leithwood, K., Harris, A. and Hopkins, D. (2019) Seven strong claims about successful school leadership revisited, *School Leadership and Management*, early online access.

Leithwood, K. and Louis, K.S. (2012) *Linking leadership to student learning*, (San Francisco, CA, Jossey-Bass).

Lincoln, Y., & Guba, E. (1985). *Naturalistic Inquiry*. Newbury Park, CA: Sage Publications.

Marzano, J., Waters, T. and McNulty, B. (2005) *School Leadership That Works: From Research to Results* (Alexandria, VA, ASCD).

Miles, M., & Huberman, M. (1994). Qualitative Data Analysis. London: Sage.

Ogawa, R.,& Bossert, S. (1995). Leadership as an organizational quality, *Educational Administration Quarterly*,31(2), 224-243.

Robinson, V., Hohepa, M. and Lloyd, D. (2009) School leadership and student outcomes: identifying what works and why: Best Evidence Synthesis, (Wellington, NZ, Ministry of Education).

Rogers, E. (1995) Diffusion of innovations (4th edition) (New York, NY, The Free Press).

Rose, J., Thomas, S., Zhang, L., Edwards, A., Augero, A.& Rooney, P. (2017). *Research Learning Communities: Evaluation report and executive summary (December 2017).*

Prenger, R., Poortman, C., & Handelzalts, A. (2017). Factors influencing teacher's professional development in networked professional learning communities, *Teaching and Teacher Education*, 68, 77-90.

Spillane, J., Healey, K. and Kim, C. (2010) Leading and managing instruction: formal and informal aspects of elementary school organization, In Daly, A. (ed) Social Network Theory and Educational Change, (Cambridge, MA, Harvard Education Press).

Spillane, J. and Sherer, J. (2004) A Distributed Perspective on School Leadership: Leadership Practice As Stretched Over People and Place. Presented at the American Educational Research Association annual meeting, San Diego, CA, 12 April – 16 April 2004.

Stoll, L., Bolam, R., McMahon, A., Wallace, M. & Thomas, S. (2006). Professional learning communities: a review of the literature. *Journal of Educational Change*. 7(4) 221-258.

Stoll, L., Brown, C., Spence-Thomas, K. and Taylor, C. (2015) Perspectives on teacher leadership for evidence-informed improvement in England, *Leading and Managing*: *Journal of the Australian Council for Educational Leaders*, 21, 2, pp. 76-91.

Tulowitzki, P., & Pietsch, M. (2018, September). *The differential and shared effects of leadership for learning on teachers' organizational commitment and job satisfaction: a multilevel analysis*. Paper presented at the European Conference on Educational Research annual meeting.

Walker, M. (2017) *Insights into the Role of Research and Development in Teaching Schools*. Slough: NfER.

Wenger, E. (1998) Communities of Practice: Learning, Meaning and Identity, (Cambridge, England: Cambridge University Press).

Wenger, E., Trayner, B. and de Laat, M. (2011) Promoting and assessing value creation in communities and networks: a conceptual framework, (Ruud de Moor Centrum, Open Universiteit, Netherlands).

Wisby E., & Whitty, G. (2017, September). Is evidence-informed practice any more feasible than evidence-informed policy. Paper presented at the *British Educational Research Association* annual conference.