Chapter 5
Towards a Typology of Educational Networks

Based on both theory and research, we will present a typology of educational networks differentiating them by factors such as network density, goals and purposes, and longevity. The typology is based on theoretical considerations and prior research, and will, along with the theories discussed in Chapters 3 and 4 provide a framework for discussing the case studies later on.

In the light of the growth of networks and the support for networking and collaboration as a school improvement strategy, an important question that needs to be answered is what the theoretical basis for networking is. In other words, why should organisations (and in particular schools) network, and what benefits should, theoretically at least, accrue from this?

5.1 Goals and Activities

The first dimension on which networks can be distinguished is that of goals and activities.

In contrast to views of networking as being necessarily concerned with learning and school improvement, other goals are both theoretically possible and present in the education system. For example, a renewed emphasis on full service schools and multiagency working has in many countries led to schools collaborating with each other and with external agencies to be able to provide a full service to pupils, addressing the social, health, and psychological needs of pupils in ways that would not be possible for individual schools (Sailor, 2002). Schools can also network, in the way businesses often do, to save material and staff costs, and to apply for funding through joint bids (Nooteboom, 2004); or for the provision of more effective and scalable CPD activities (Hadfield, 2005). It is clear that a pure school improvement orientation may therefore be too limited a viewpoint when discussing networking in schools. Therefore, network goals as they currently appear to exist in practice can be broadly defined as being about

- School improvement
- Broadening opportunities (including networking with non-school agencies such as social services or business)
- Resource sharing

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As well as having different goals, school networks can be distinguished in terms of the timescale of activities undertaken. Activities undertaken by networks are obviously highly varied. Nevertheless, some key distinctions have been observed in terms of activity timescales. Some network activities are essentially short-term 'fixes', aimed at immediate issues of concern (such as getting out of special measures), but with little or no potential for longer-term impact. Others are intended to bring about much more fundamental changes (for example, changes in the school's culture or image), which may take several years to achieve, or lead to noticeable impacts. Many strategies fall somewhere in between (for example, a co-ordinated local strategy for inclusion, or setting up an action-learning set for head teachers), offering some combination of short-term impact and longer-term development.

Therefore, networking can be aligned along two dimensions, in terms of goals and activities, in the following way (Table 5.1):

Table 5.1 Goals and activities of networks with examples in each cell, taken from the authors' research

	Activities		
Goals	Short term	Medium term	Long term
School improvement	Partner school shares system to target D/C borderline pupils	School leaders support each other by sharing data and openly discussing approaches to school development. Leaders are available for support when necessary	Schools develop joint accountability systems, collegial leadership approaches and sustained support networks that draw in any new leaders in the network
Broadening opportunities	Partner schools put on a joint exam preparation day	Partner schools develop some shared courses, offering specific vocational courses in each partner school to all pupils in the partnership	Partner schools develop joint curriculum planning system, with development done collaboratively
Sharing resources	Teacher brought in from other school for Ofsted inspection	Teachers regularly help out in other network schools, with swapping and peer teaching common	Joint appointments made to the network, schools collaboratively plan recruitment and succession

Examples of each of these can be readily found in ongoing research on networking (e.g. West et al., 2006), and one example has been included in each cell. These examples are obviously far from exhaustive, and are offered as a snapshot rather than a definitive categorisation of all networking activities that may take place in schools.

They are also not intended to be normative. In particular, we do not intend to suggest that short-term activities are inherently less valuable than long-term activities. Dependent on the goals of the collaborative activities (e.g. coming out of special measures), the opposite may be true.

We can also link goals and activities to some of the theoretical approaches we discussed in the previous chapters, and networks may be classified on this basis. The following tables provide some examples, though need to be treated tentatively, as it is clear that some activities, for example, could be classified in more than one way depending on underlying purposes (Tables 5.2 and 5.3).

Table 5.2 Goals and theories

	Goals		
Theories	School improvement	Broadening opportunities	Sharing resources
Constructivism	Learning communities developed around joint subject groups	Schools work with local businesses and agencies to develop a better understanding of how to jointly address the needs of the local community	Schools put in place joint professional development programmes, where all schools in the network share the development of training resources
Social capital	Schools develop a supportive leadership network, where heads share their different areas of expertise in finance, marketing, and learning	Schools collaborate in curriculum provision by using the resources (e.g. industrial kitchen) in one school for courses across the network	Schools collaborate in hiring external consultants and developers for joint CPD events
New social movements	Schools come together to develop their own school improvement services outwith the LEA under the auspices of an activist head	Schools decide to form a network with local businesses and schools from another LEA to develop new curricular offerings	Schools join to lobby the LEA for additional resources under the leadership of the new head of one of the local schools
Durkheimian network theory	Schools serving a disadvantaged community form a network to develop shared working so staff can gain mutual support	Schools suffering falling roles develop joint curriculum in order to avoid closing provision seen as valuable to the community but with less student numbers in any one school	Schools decide to collaborate with the local church to share the church hall to develop parental outreach outside a school environment

Table 5.3 Activities and theories

	Activities		
Theories	Short term	Medium term	Long term
Constructivism	Schools engage in a joint problem-solving day around low performance in maths	Subject teachers regularly engage in joint CPD	Joint subject groups operating at the network level
Social capital	A curriculum expert from one school helps others develop a new timetable for the academic year	Schools can draw on one another's expertise in different subjects, by swapping teachers and occasionally using each others' resources	Schools in the network specialise in different areas and subjects
New social movements	Schools collaborate to lobby their LEA around a common problem	Schools decide to pool resources and develop their own CPD support	Schools develop a network that takes over most of the traditional roles of the LEA
Durkheimian network theory	Two schools threatened with special measures decide to hold common development day on preparing for LEA inspection	Schools facing challenging circumstances bring in an external consultant to develop a joint programme aimed at raising low literacy levels	Two schools facing challenging circumstances form a federation to pool resources and build capacity

5.2 What Networks? Further Classifications on Key Dimensions

As well as these theoretical distinctions, networks can be varied in form and can be categorised along a number of other key dimensions.

5.2.1 Voluntarism or Coercion

One dimension is the extent to which collaboration has been entered into voluntarily or, for at least one partner, under some form of coercion.

At one theoretical end of this continuum, one could find completely voluntary arrangements, whereby two or more schools form a network without any form of incentive. In practice this type of network will be rare, or be too informal to be the subject of mapping or research. At the other end of the continuum, we find networks in which two or more schools have been compelled to collaborate with one another by the government or Local Education Authority, for example with one school charged with improving the other. Again, in the English policy context of school-based management this arrangement will not usually occur in its pure form, though arrangements that are more or less coercive for at least one of the

partners (for example the 'weak schools' in some two school federations) do exist. Most English examples of collaboration sit somewhere in between these extremes, with certain 'hard' federations tending towards the coercion continuum, while the Leadership Incentive Grants, for example, have led to a number of voluntary groupings, albeit with a financial incentive to collaborate.

Compulsion may, in some cases, be necessary to lead schools to improve, and has the advantage of greater control and opportunities for integration. It has clear disadvantages in terms of a likely reluctance of some members of staff in the school to fully engage in the network, and in the lack of trust that may result from this.

Below, we have given three examples of voluntary, intermediate, and coercive collaboration. Obviously, as mentioned this classification is a continuum, with many shades of networking in between the two poles (Table 5.4).

Table 5.4 Voluntary, intermediate, and coercive collaborations

Voluntary	Intermediate	Coercive
Schools voluntarily come together to form a network designed to take over some of the functions of a failing LEA	A government grant for collaborative activity leads the LEA to encourage schools to form a network	DfES informs a failing school that it will either have to Federate with a successful local school or close

5.2.2 Power Relations

An important dimension linked to the extent of coercion but not equal to it, is the extent to which relationships between networks are based on equality or on domination by one or more network partners. In theory, relations based on voluntarism should not be dominated by any actor, with partners working together to solve solutions on an equal basis (though issues of personal power, unequal status between partners or even unequal leadership capacities may modify this considerably), while coercive relations may be less so (although one can imagine coerced equal relationships, this is not a likely pattern).

Unequal relationships will frequently occur where a 'strong' school is paired with one or more 'weaker' schools to help these improve, a popular school improvement model in many Local Authorities in England (Lindsay et al., 2005). The advantage of the weak/strong school model can lie in the modelling and sharing of good practice from the 'strong' school to the weaker one (Chapman & Allen, 2005), though resentment and lack of cooperation among staff frequently result, with staff in the 'weak' school feeling that their strengths are not recognised and that they are being colonised by the stronger partner, while staff members in the stronger school can often be left wondering what the advantages of the collaboration with its increased workload are for them. On the other hand, a risk with voluntarism is the 'fat boy in the playground' syndrome, whereby certain schools will end up being seen as unattractive partners for networks, often those that could most benefit from them (Lindsay et al., 2005). While in theory the moral purpose of serving the community may compel head teachers to work with such schools

anyway, enlightened self-interest within a competitive and performative framework may in many cases militate against this. Networks consisting of only weak school, however, often lack capacity collaboratively as much as the schools in the network do individually. Limited evidence suggests that collaborations may be more effective, at least in terms of getting off to a quick start, if they are either truly voluntary or coercive, while attempts to externally engineer communities of practice may be hard to get going (though this says nothing about long-term effectiveness) (Lindsay et al., 2005). Incentives to collaborate appear essential within a competitive culture that can otherwise make this problematic (Ainscow & West, 2005; Table 5.5).

Table 5.5 Voluntarism

Equal	Intermediate	Domination
Two neighbouring high-performing schools form a voluntary network to develop shared courses	A popular, high-performing school and a number of less high-performing schools form a network under the auspices of the LEA. While each school retains its head and autonomy, the perceived higher effectiveness of the first school gives that school more clout with the LEA and thus more influence in the network	A highly effective school is asked to take over a failing school through a federation. The head of the effective school becomes the head of the federation

5.2.3 Network Density

Networks can differ substantially with regard to their density. One way in which this can manifest itself is in the differential involvement of different groups in the process. As such, collaboration within the network can be largely a matter of heads and senior management, with little involvement (and in some cases little knowledge) of other staff groups (Muijs, 2006a). On the other hand, collaboration could involve specific groups of school staff, such as Science departments across schools, with agreement of senior managers but little actual involvement of members of the SMT. Theoretically, all staff could be involved through exchanges, visits, and joint meetings, though in practice this is unusual. Maximum density exists where everyone is connected to everyone else.

The extent to which pupils are directly impacted by collaborative activities within the network can similarly vary, from a direct impact through pupil and teacher exchanges or lessons followed in other network schools, through indirect impact resulting from good practice developed in network activity influencing classroom practice, to no impact on or involvement by pupils at all.

We can therefore see density as another continuum, where involvement can be mapped out by both number and seniority of staff involved. As we will discuss

below for density of schools in a network higher density is not always desirable due to the increased complexity it entails. There may also be an element of redundancy in having too many contacts, and an element of confusion may occur as a result (Nooteboom, 2004). Some commentators, however, have described redundancy as a necessary correlate of effective networking as the complexity thereof could otherwise lead to the possibility of breakages in the network(s), and research from the Health sector suggests that greater density is associated with more beneficial outcomes, especially where complex outcomes need to be delivered, as can certainly be said to be the case of education (Hadfield, 2005, Nylen, 2007). A minimum level of density does appear essential to impact though, as involvement of very few people in an organisation is unlikely to have whole-school impacts.

Another perspective on density, depth of involvement, can be mapped out according to frequency of involvement, i.e. how many contacts are there, and depth of contacts, i.e. do contacts consists purely of meetings, or are there joint activities in terms of professional development, teacher exchanges, etc. At the extreme, deep involvement could eventually take the form of a merger between schools as happens in the private sector, although the problem of creating large, impersonal schools which are often seen as less effective than smaller schools is one that needs to be taken into account before going down this route.

In the table below we give some examples of how networks can vary in terms of density of staff and pupil involvement in collaboration (Table 5.6).

Table 5.6 Network density

Low density	Medium density	High density
Head teachers of network schools regularly meet and collaborate, but other staff are not directly involved	As well as a senior management group, there are cross network groups of subject leaders, pastoral leaders and some cross network groups engaged in specific school improvement activities, such as a data group. Not all staff, especially classroom teachers, are involved in collaborative work with colleagues from other schools	There is a joint senior management group for the network, subject teachers form cross-school networks and regularly teach in each others' schools, and pupils are engaged in joint activities such as exam preparation with pupils from other schools

5.2.4 External Involvement

An important dimension of educational networks is the extent to which external organisations or partners are involved with the network. This is frequently the case, with many networks formed around multiagency work involving social and child

service agencies, while school improvement partnerships frequently involve Local Education Authorities, universities, or external consultants. The extent of involvement of these external bodies can vary considerably, from a purely brokering role at the start of the relationship to being an integral part of the relationship as is the case for partnerships between child service agencies and schools. In some cases the external partner can even be the main driving force behind the network, as is the case with some school reform programmes. It is, of course, entirely possible for networks to exist without external involvement, though in practice some form of brokering will typically have taken place. Community involvement can likewise vary considerably between networks, from none at all in many cases, to the community being an equal partner in the arrangement (though this is rare in practice) (Table 5.7).

Table 5.7 External involvement

Low external involvement	Medium external involvement	High external involvement
Schools have formed a voluntary network with minimal involvement of the LEA and no involvement of other external groups	Schools have formed a network under the auspices of the LEA. An LEA advisor is network coordinator, though this is largely a brokering and administrative role. The network also works with consultants from the local HEI	A charitable trust has invited schools to join in a network led by charity staff, who provide leadership, a full range of advisory services, resources, and data management

5.2.5 Different Time Frames

Collaborations can also have starkly differing time frames. Some collaborative arrangements can be intended to be more or less permanent and aimed at fundamental change, as is the case in the 'hard' federations, which are in many ways similar to merger arrangements in the private sector, while others can be very time-delimited, such as collaborations around a specific bid or initiative (Ainscow & West, 2005). There are of course a range of shades between these extremes, as well as some fluidity as initially short-term collaborations may grow into more permanent and lasting links.

In many cases there is no clarity on the intended duration of the collaboration. This is problematic (as we will see below), as it is not always desirable to maintain collaborations indefinitely because the same myopia that afflicts single organisation may end up affecting longstanding networks as well, and severing the link may be a more painful and difficult process where no prior end-point has been built in. However, there is some evidence from research that stability benefits network performance (Milward & Provan, 2003; Table 5.8).

5.2.6 Geographical Spread

A lot of the educational literature tends to assume that networking is largely a local affair, situated within local clusters or, at the outset, one local authority. Again, this is

Table 5.8 Different time frames

Short term	Medium term	Long term
Schools form a network to prepare for the closure of one of four schools in the locality. Once the closure has come into effect, the network will cease	Schools form a networked learning community working around distributed leadership. Once funding stops, schools intend to continue some form of collaboration, though this is very much a function of the enthusiasm of current leaders and may well cease once the head of one of the schools leaves	Schools form a federation with a joint governing body and joint executive head. Plans to locate all three schools on a shared site are at an advanced stage

but one possible form of networking, as cross-local, regional, and even international networks may and ever more frequently do occur as technological advances make this type of networking ever easier. While local networks may have the advantage of being set up to tackle specific local problems through a collaborative approach, they are often set up for purely practical reasons, such as existing LA links. In many cases a compromise is sought between the practical ease given by proximity, and lack of competition that is enabled by schools not serving the same catchments area, leading to networks across different areas of an LEA. Cross-regional networks are more frequently based on shared values or belief systems, and may in this respect be more coherent (Hadfield, 2005). Differences in intake, and a lack of support for specific local issues may be problems here, however.

A very specific form of cross-local networking is the franchise model, whereby schools collectively deliver a particular branded curriculum model. Private organisations are currently developing such franchised models (e.g. GEMS), but the extent to which these can count as instances of networks is doubtful in view of the strong central management involved, notwithstanding the links between schools in these models.

As well as varying in terms of their geographical reach, networks can also vary in terms of the extent to which they are cross-phase or not. Some extent of cross-phase collaboration has existed for a long time in education through the feeder school relationship between primary and secondary schools. Most extant collaborations and networks tend to focus on one phase however, with few going beyond the feeder school relationship as far as cross phase networking goes (Table 5.9).

Table 5.9 Geographical spread

Proximity	Medium distance	High distance
Two neighbouring schools serving a disadvantaged area form a federation	Schools network with schools in a neighbouring LEA, forming a regional network	A group of schools across the country run by the Jesuit order form a network on the basis of shared values

5.2.7 *Density of Schools*

Networks also differ in terms of the number of schools involved. Interestingly, a lot of the theory of networks seems to refer to dyadic relationships, even though these are by no means the most prevalent in practice (Nooteboom, 2004). It is clear that networks can differ substantially in size, and can also expand and contract over time. Contraction usually occurs when certain network members become disengaged from the network and drop out, a particular problem in larger networks where a small core often ends up driving the activities. Scaling up can be problematic, as it represents a fundamental change in the relationship between partners, especially when scale up happens from a low base, as in a change from a dyadic to a triadic network (Simmel, 1950).

Within large networks, density of collaboration can differ in terms of the number of connections between schools within the network. Again, maximum density occurs where all schools are connected to one another. It has to be pointed out here that while high density may appear desirable in terms of deepening the collaboration and maximising opportunities for collaborative learning and cultural change, overly dense collaboration can be problematic, due to the increased complexity of managing them. Indeed, given that the maximum number of direct connections is $n(n–1)/2$, the complexity of the network rises with the square of the number of participants (Nooteboom, 2004). There is therefore a balance that needs to be struck between the desirability of high levels of connectivity and the increased complexity of managing these. Once networks become large, a centre-periphery model tends to emerge, where certain organisations form a core driving the network, while others are more peripherally connected to it. Coordination becomes ever more important, and centrality of the organisation in the network starts taking on a greater significance as it leads to power and control of the information flow. Density is not a requirement for the development of social capital, as weaker ties can also be effective as long as they plug the structural holes in actors' knowledge and skills.

According to Lin (1999), dense ties are more effective for preserving and maintaining resources as a denser network allows more chance of mobilising many others to help defend the threatened resource, while more flexible and weaker links may be more effective for obtaining new resources. While multiple partnerships may be desirable, a surfeit of networks may be problematic for schools in that it can hinder clarity and purpose (Lindsay et al., 2005). No relationship between density and impact was found in the CUREE (2005) systematic review.

Durkheim (1972) makes an interesting distinction between material density, which can be characterised as similar to the concept of density presented here, and moral density, which he characterised as occurring when social actors doing their specialised work interact with and take into account their collaborators, while being aware of the consequences of their actions for society as a whole.

In practice, the smallest networks obviously consist of two schools, while the largest networks, we are aware of, contain not more than 15 schools, though larger networks are theoretically possible. An intermediate network would then consist of between five and ten schools.

5.2.8 Vertical or Horizontal Networking

A final distinction that can be made is related to the extent to which collaboration is vertical, i.e. within schools, as opposed to horizontal, i.e. between schools. This is again a continuum, whereby schools can be situated along two poles in terms of vertical collaboration (as mentioned in the section on depth of networks), but can likewise be situated along two poles in terms of the extent to which this vertical networking goes along with internal networking in the school. This can be near to non-existent, can be at the individual teacher level, and can operate within departments, or, in the case of the most 'collaborative' schools, across departments. As with vertical networking, the number of people involved and the extent of interaction can be differentiated. Thus, schools can be mapped along depth of networking vertically and horizontally, potentially providing a useful heuristic tool allowing us to probe more closely the relationship between (extent of) networking and organisational performance. Some examples are given below (Table 5.10):

Table 5.10 Horizontal or vertical networking

Vertical networking	Horizontal networking	Horizontal and vertical networking
Joint working groups exist within the school around specific school improvement priorities, such as data management and literacy, but there is no external networking	Subject heads from schools within a network have working groups around their subjects, but no such mechanisms exist internally in the school	Joint working groups exist within the school around specific school improvement priorities, and one representative of each within school group sits on a cross school network committee around the same priority

Obviously networks will be classifiable along different dimensions, such that we could describe a network as voluntary, medium density, intermediately dominated, and with high external involvement, for example.

5.2.9 Network Diffuseness

Networks can also be more or less diffuse, in the sense that they may be composed of a loose collection of actors, shifting in membership (such as would be the case in a situation where a group of local schools sets up informal meetings or problem-solving working parties around specific issues) or, at the other extreme, be a fixed, finite groups of actors that are connected in formal mechanisms. Rather than diffuse in this case the network is formed of exclusive relationships (this would be the case in a 'hard federation' of schools, connected by a joint governing body, for example) (Uzzi, 1996). No one form of network has been found to be most effective, rather, networks appear to be more effective if they don't have a form imposed upon them,

though it appears that accountability of the network to a higher power encourages actors to develop optimal network structures (Milward & Provan, 2003).

5.2.10 Network Formalisation

In terms of the management of networks, and the relationship between actors in the network, networks can be characterised as being more or less formalised. In some cases networks rely largely on trust and good faith, and require little in the way of formalised agreements or management structures. This type of network can be highly effective in that problems can be easily and flexibly resolved. However, they can be strongly reliant on relations between individuals and can run into difficulties where staff changes occur. There can also be difficulties when things go wrong, where it can be unclear where responsibility for service provision lies and therefore who is ultimately accountable. In more formalised arrangement contracts, management structures and formal agreements can attenuate these problems, but can also limit flexibility and responsiveness, and can in some cases militate against the development of trusting relationships. Moving from informal to formal collaboration can be disruptive to existing relationships (Nylen, 2007). In its most extreme manifestation formalisation can lead to the setting up of specialised units or structures specifically charged with organising the collaboration, which obviously entails significant costs. The evidence suggests that the greater the cultural distance between organisations and the less they have previously worked together the greater the need for formalisation.

5.3 Conclusion

There are therefore a range of dimensions along which we can classify networks, and which all have consequences in terms of the choices that need to be made when engaging in networks, as they may carry different costs, levels of complexity, and potential rewards. The situation is further complicated by the fact that these dimensions interact with one another. For example, there is evidence that there is a relationship between network density and formalisation in that higher levels of density appear to require lower levels of formalisation. In highly complex situations, on the other hand, both high levels of formalisations and high levels of density may be required, as where different organisations have to combine to deliver services to groups with complex needs, as may be the case with a collaboration between special schools (Nylen, 2007).