

## Curriculum making as relational practice: A qualitative ego-network approach

### Abstract

Professional networks of teachers have been well documented in education studies but there is still a need for a fine-grained analysis of teachers' ego-networks in the context of curriculum making. It is important to understand the nature and dynamics of teachers' connections and how teachers mediate their practices accordingly. This study employed a qualitative approach to examine eight secondary school teachers' ego-networks from Scotland and Wales, which were constructed to talk about curriculum making. The aim of this study is to explore curriculum making as relational practice and to examine the structure, composition and the content of teachers' networks by drawing upon a critical realist perspective. Findings suggested that the qualities the relationships possess (relational goods & evils); context (national and organisational); and, teacher agency are the three mechanisms to understand how teachers mediated curriculum making through their ego-networks.

**Keywords:** curriculum making, ego-network, teacher agency, Scotland, Wales

### Introduction

There has been a growing body of research on teachers' networks and a recent call for a fine-grained analysis of different features of these networks to expand our knowledge of teachers' interactions (Sinnema, Daly, Liou, & Rodway, 2020; Tuytens, Moolenaar, Daly, & Devos, 2019; Woodland & Mazur, 2018). Teachers' networks, which are named differently in different contexts (e.g. professional learning networks, communities of practice) are considered one of the essential elements for improving the quality of educational reform (Coburn, Russell, Kaufman, & Stein, 2012). There are different facets and forms of teachers' networks, and the content, context and particular time periods matter; these reveal the complexity of understanding teachers' interactions (Little, 1990). For example, both formal and informal connections, the quality of the relationships as well as what the communications entail are essential ingredients in improving our understanding of teachers' interactions (Woodland & Mazur, 2018). Recent changes in the emphasis on curriculum policy – the 'new curriculum' (Priestley & Biesta, 2013) – in which teachers are often seen as change agents, would benefit from better understandings of the crucial role played by networks in policy implementation (Coburn & Russell, 2008; Daly, Moolenaar, Bolivar, & Burke, 2010).

In the field of curriculum studies, teachers' networks can be expected to contribute to curriculum reform (Coburn et al., 2012) while it is also evident that there is an organic relationship between teachers' interactions and the demands of the particular reform (Cole & Weinbaum, 2010). Teachers mediate curriculum in different ways, in different contexts, at any given time, as has been well documented (Hizli Alkan & Priestley (2019); Kontovourki, Philippou, & Theodorou, 2018; März & Kelchtermans, 2013; Osborn et al. 1997; Pietarinen, Pyhältö, & Soini, 2016). There has been valuable contribution by scholars employing social network methods to examine how different forms of teacher networks (Spillane and Hopkins, 2013) mediate different elements of curriculum making, such as instructional practices (Sun, Penuel, Frank, Gallagher, & Youngs, 2013), professional development (Penuel, Sun, Frank, & Gallagher, 2012) and expertise and resources (Sinnema et al., 2020). To date, however, there has not been a detailed exploration of teachers' ego-networks, which would make the teacher the focal actor of formal and informal connections, in the context of curriculum making. This article seeks to address this gap by exploring secondary school teachers' curriculum making networks, and to offer a critical realist approach to understand these networks by underlining the relational aspect of curriculum making in greater depth. To achieve this end, the following research questions are addressed:

1. How are teachers' ego-networks structured and composed?
2. What is the content of teachers' curriculum making networks?
3. What are the underlying mechanisms for explaining teacher mediation of curriculum making through the networks?

This paper proceeds in the following steps. First, by discussing previous research in curriculum making and teachers' networks upon which this study is built. Thereafter, the theoretical and analytical framework is explained before the context of the research is outlined. Following this, the methods, participants, data generation, analysis procedures, and ethical considerations are introduced. After the findings are explicated, the article ends with the implications and discussions on the basis of empirical findings.

### **Curriculum making as relational practice**

First of all, a clear description of curriculum making by teachers is needed. In the context of this study, curriculum making is understood as teachers' social and relational practices in their schools and classrooms, drawing upon recent theoretical debates (Priestley & Philippou, 2018). This indicates the intertwined, context-dependent and unpredicted nature of different elements of curriculum making (Kontovourki et al., 2018). It involves interactions, meaning making, and taking actions in relation to personal, structural and cultural factors. This brings us to the importance of the relational aspect of curriculum making, which I draw from Donati and Archer's (2015) work.

Donati and Archer's (2015) view of relationality in people's decisions and actions emphasises that there is a pivotal need to examine the meanings attached to social interactions created by the individual. This should be accomplished by giving particular attention to individuals' concerns, interests, values, the constraining and enabling factors of cultural and structural conditions that they are placed in, and relational goods (e.g. trust, shared commitments) and evils (e.g. negative meanings attached to the connections, distrust) that are generated through social interactions. This approach underscores the importance of the notion of teacher agency – an emergent phenomenon about being able to make choices and enacting by means of environment (Priestley, Biesta, & Robinson, 2015).

A qualitative ego-network approach (Bellotti, 2015) offers a meaningful and nuanced understanding of teachers' curriculum making practices, by focusing on one social actor and her/his connections. This resonates with Anderson's (2010) idea that the possibilities the network offers are subject to transformation by individuals – and in fact, perceptions of individuals may have more impact than the actual network (Baker-Doyle & Yoon, 2010). A distinctive feature of ego-networks is in acquiring both formal and informal connections of teachers, which are important in understanding how teachers engage with the broader community (Anderson, 2010; Coburn et al., 2012).

### **Teacher's networks and curriculum making**

Teachers' social and professional interactions play an important role as they navigate their way through the complexity of curriculum making. I will look at two areas to examine teachers' networks and curriculum making to lay a foundation for the empirical section: the composition of teachers' networks and the content of the relationships.

The composition of teachers' networks refers to the question of whom teachers communicate with. These networks may comprise existing connections in schools or professional learning communities, or novel wider connections (e.g. across schools), which are formed, for example, as a result of a curriculum reform (Coburn, Choi, & Mata, 2010). These connections may

include both formal and informal connections for being equally important as the former (Brown, Daly, & Liou, 2016; Cole & Weinbaum, 2010). The composition is influenced by many factors such as organizational context and social arrangements (Coburn et al., 2010) and also the transparency of expertise within or beyond schools (Baker-Doyle & Yoon, 2010). Additionally, ongoing curriculum changes and shifts in policy will also influence how teachers communicate with different people at different times (Coburn et al., 2012). Local authority arrangements and policy initiatives can also be influential in the composition of teachers' networks by, for example, offering professional development programmes (Sun et al., 2013). Certain characteristics of the composition may be evident in the networks, such as how similarity or diversity plays out (e.g. occupation, attitudes towards the reform). Some research has suggested that geographical closeness of work locations (Daly & Finnigan, 2010), as well as physical distance within school buildings (Spillane, Shirrell, & Sweet, 2017) may influence with whom teachers forge ties. Besides, school size, (Moolenaar, Slegers and Daly, 2011) time and resources allocated to teachers (Berebitsky & Andrews-Larson, 2017) might also influence how the networks are formed.

The content of interactions also matters, that is, to understand the purpose of these connections being formed and what can be offered to teachers in these networks, as well as what might be missing. In the context of the curriculum, new reforms usually bring new instructional approaches for teachers to achieve the purposes of reforms (Spillane & Hopkins, 2013). Teachers' networks are, therefore, utilised to spread these new practices. This is important as the new curriculum reforms and school dynamics are always changing and teachers' networks have a strong potential to mediate this process. In addition to seeking advice on instructional approaches, Geeraerts et al. (2018) demonstrated that subject-matter knowledge, classroom management and ICT are other areas where teachers ask for advice. The content of networks is influenced by several factors. For example, Coburn and Russell (2008) suggested that district-level policy initiations influence access to expertise and the depth of interaction when they can also control some of the competing variables, which may hinder effective collaboration (e.g. time pressure). Sometimes, these competing variables themselves, such as accountability pressure can, in fact, be the very reason of tie formation in advice networks (Berebitsky & Andrews-Larson, 2017).

### **Theoretical and philosophical framework**

Social capital is a prominent theory in network research. The main argument is that the positioning of individuals in networks may enable or constrain opportunities to achieve their desired goals (Lin, 1999). Building on this fundamental assumption, the research adopted a relational understanding of interactions in networks, drawing upon Donati's (2015) critical realist perspective. In this view, social relations are not reduced to sole transactions or exchange but they are seen as 'a reality that interweaves elements that derive from nature with effects deriving from the networks connecting actors' (Donati, 2015, p.89). Employing this theoretical position provides extensive explanations of the different conditions of social relations and the nature of the network (e.g. structural characteristics), ultimately getting inside these relationships.

Critical realism holds the idea that reality is stratified and there are three overlapping domains (Bhaskar, 1998): the empirical (what we experience and observe), the actual (events which may or may not be experienced) and the real domains (unobservable underlying mechanisms which create the events). These mechanisms should be identified to understand the social phenomena under investigation, in this case, curriculum making. Critical realism posits how the social world is an open system, requiring extensive and rich explanations which are always fallible (Danermark, Ekström, Jakobsen, & Karlsson, 2002). This combination of relationality and

critical realism offers a robust and sound framework in understanding curriculum making as social and relational practice.

### **Context: Scotland and Wales**

The research was undertaken in two countries, Scotland and Wales, both of which have introduced large-scale curriculum reform. Scotland's Curriculum for Excellence (CfE) was introduced in 2010, in which teachers are seen as agents of change and where their professional networks are considered sources for professional development to leverage the quality of teaching and learning (Scottish Government, 2008). There have been different initiatives and a varying degree of support to enable and enhance teacher collaboration for curriculum making in Scotland. For example, Regional Improvement Collaboratives<sup>1</sup> were established in 2018 to enhance professional support networks.

A different pathway regarding teachers' networks has been taken in Wales from 2016 onwards. The new curriculum in Wales has been co-constructed by teachers, with a particular emphasis on the agency of teachers with the support of local authorities, curriculum and subject experts from national and international bodies. Pioneer Schools Network were established with regional consortia of local authorities. Pioneer teachers act as brokers to support curriculum making in line with national reform, and to develop practices in schools (Welsh Government, 2020).

In both cases, teacher networking is seen as crucial to the success of mandated national reform. The ego-network approach offers a powerful approach to explore the nature and dynamics of the relationships.

### **Methodology**

#### *Design*

The research utilised a qualitative ego-network approach, which starts with and focuses on the social actor (ego) and involves their connections (tie) to other people (alter) (Bellotti, 2015; Crossley et al., 2015; Perry, Pescosolido and Borgatti, 2018). Hence, each ego-network comprises the teacher (ego) and maps out her/his connections to other people (alter). Each ego was given a number from one to eight and their alters were also coded using these numbers and letters (e.g. 4A, 5E). Semi-structured interviews were used to complement the network data to give a more substantial picture of teachers' professional profiles and understanding of the curriculum related concepts. Bellotti (2015) argues that qualitative networks are mixed-method studies in nature, as the quantitative measurements provide some features, and the patterns of the network data and the narrative accounts offer explanations of these patterns. This research design is informed by Bellotti's (2015) work on qualitative networks, which also supports critical realism as a philosophical framework, and also draws from Crossley et al.'s (2015) and Perry et al.'s (2018) conceptual and methodological tools in generating and working with network data.

#### *Participants*

Eight secondary school teachers with different specialisms participated in this research during 2018-19: six from Scotland and two from Wales. Opportunistic sampling was used to recruit participants, by advertising the research on social media and in some of the professional networks (e.g. local authorities). The participants demonstrate a variety of demographics (see Table 1), which on one hand, shed light on the different dimensions of curriculum making, on

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<sup>1</sup> For more information, visit: <http://tiny.cc/kw8nlz>

the other hand, don't allow any kind of empirical generalizations (Danermark et al., 2015). In addition to categorical variables, it is important to emphasise the state of curriculum related background of participants as it will help readers to locate the participants and the findings of this research. Karen was part of the Pioneer Network in Wales and Rosy had a curriculum lead role within her school. Kyla held a Master's degree in Education and Heather was currently doing her Master's in the Professional Learning and Middle Leadership programme. Participants were given pseudonyms to protect the anonymity of their identities.

<b>Participants</b>	<b>Country</b>	<b>Gender</b>	<b>Years of experience</b>	<b>Subject specialism</b>	<b>Role</b>
<b>Joanne</b>	Scotland	F	7 years	Chemistry	Teacher
<b>Erica</b>	Scotland	F	11 years	History	Teacher
<b>Tim</b>	Scotland	M	30 years	Chemistry	Teacher
<b>Heather</b>	Scotland	F	6 years	Design and Technology	Teacher
<b>Ashley</b>	Scotland	F	9 years	History	Teacher
<b>Kyla</b>	Scotland	F	11 years	English	Teacher
<b>Rosy</b>	Wales	F	19 years	Biology	Teacher and Senior Leadership member
<b>Karen</b>	Wales	F	7 years	Arts	Teacher

#### *Data generation*

Data generation was twofold (see Figure 1). The first stage consisted of eight individual semi-structured interviews to get to know the teacher's professional profile and to explore their understanding of curriculum and curriculum making. The structure of the interview was designed to enable responsive and flexible data generation (Rubin & Rubin, 2005). The second stage, which was later in the same term, was devoted to the qualitative ego-network data generation. Eight interviews were held in which a name generator, interpreter and inter-relator were utilised with visual aided methods (see appendix 1 for sample items) (Robins, 2015). The name generator asked participants questions about with whom they talked about curriculum-making related matters. I also enquired about potential links beyond their immediate school environments such as curriculum experts, local advisers, academics, etc. Participants nominated alters and then placed these names on the target, according to emotional closeness. A name interpreter was utilised to gather more detailed data about the alters. During the final phase, participants connected the alters on the target, if they knew one another, which gave a sense of the extent to which the curriculum-making network was connected. This visual aided method was useful as participants had constructed and visualised their network during the interview and had a chance to comment on their networks during and after the research activities. This also facilitated more in-depth discussion on both individual alters and also on the overall network structure (Hogan, Carrasco, & Wellman, 2007). These instruments were built on previously validated social network research approaches (i.e. Coburn & Russell (2008); Coburn et al., (2012), as well as included new items based on the research questions addressed.

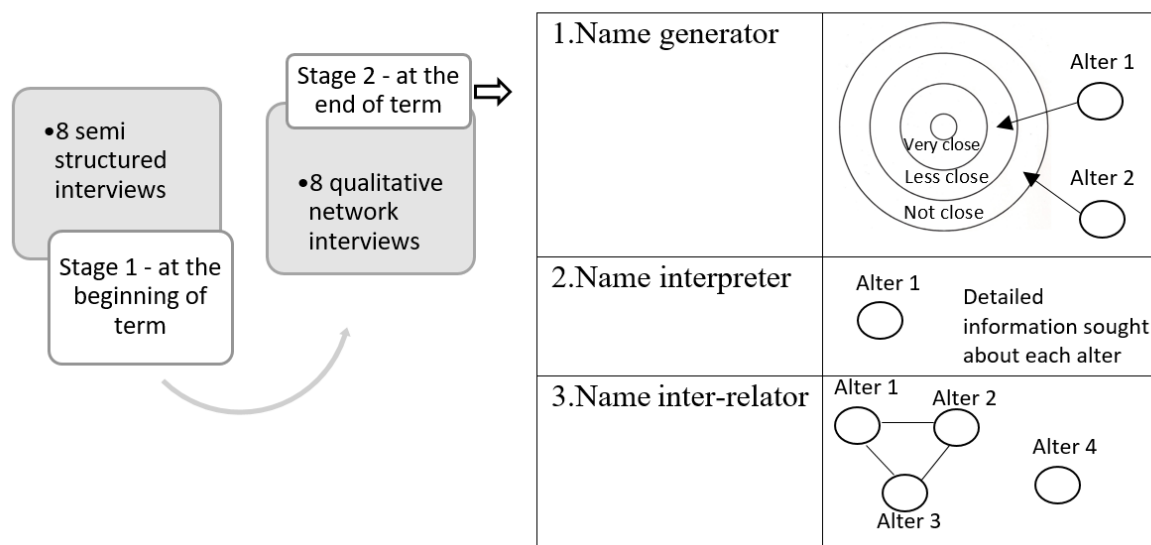


Figure 1. Data generation process and tools

### Data analysis

Data analysis was philosophically informed by critical realism (Danermark et al., 2002) and drew methodologically upon a qualitative ego-network analysis (Bellotti, 2015). Descriptive statistics at the network level (density, effective size) were computed to explore several emerging patterns and features of the structural characteristics of the networks (Borgatti & Ofem, 2010). Density, which refers to the degree of the connectedness of the alters in a network, is one of the structural measurements in network research. The value of density ranges between 0 to 1, the latter indicating the highest density. For example, if all alters in an ego-network are connected to each other, the density measure will be 1. It is important to point out here that the nominated alters and their connections within the network are limited to the ego's perception so the network might be inaccurate compared to the actual one (Perry et al., 2018). In other words, there might be more people ego talked to about curriculum making during that term which weren't included in the networks, or maybe less people as the alters were not reached to double-check if ego actually talked to them. This should be considered in making inferences about the structural characteristics of the network. Effective size refers to the number of non-redundant alters to whom ego is connected; in other words, it indicates a number of different pots of information that the ego has access to. This analysis combined patterns emerging from a quantitative analysis of numerical items (e.g. density) with the narratives of participants in the interviews and meanings attributed to such patterns. Hence, the narrative accounts provided a context for the structural properties and measurements of the network. It is important to note here that the participants were not given a certain definition of curriculum or curriculum making and nominated alters based on their own understanding of these concepts (Bellotti, 2015). This enabled me as a researcher to explore the ways in which conceptualisations of curriculum may shape network dynamics, or vice versa.

### Findings

The organization of findings is as follows: First, I present the overall characteristics of the eight curriculum making networks. This will provide the first impression of their composition, and the contexts and reasons for tie formation. Second, I will examine the networks more closely by looking at different structural measures, and discuss several patterns to understand their

dynamics. In the final section, I will explore relationships in more depth, looking at the content of the curriculum-making conversations.

*An overview of the curriculum making networks*

Eight curriculum making ego-networks (see Figure 2) consisted of 74 alters, 43 of which were female (see Table 2) and 54 had more than 10 years of experience. Classroom teachers comprised the biggest group within the eight networks (n=50), followed by senior leadership team members (SLT) (n=9) (see section 7.3.1. for a detailed discussion).

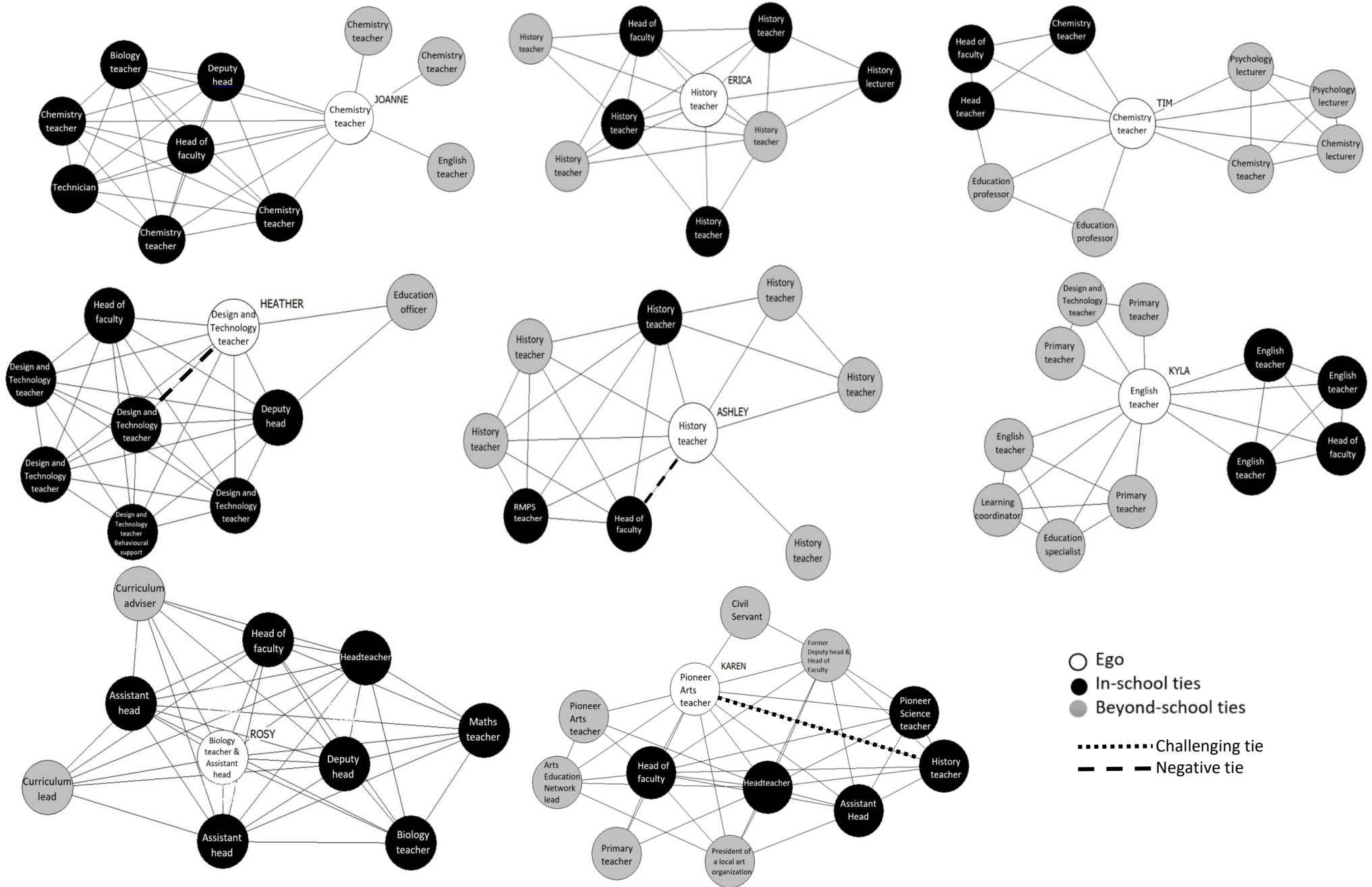


Figure 2. Eight curriculum making ego-networks (showing their roles and context)



**Table 2.** Demographics of curriculum making networks

		<b>Egos (n=8)</b>			<b>Alters in the networks (n=74)</b>		
		Scotland	Wales	All	Scotland	Wales	All
<b>Gender</b>		5F 1M	2F	<b>7F</b> <b>1M</b>	32 F 22 M	11 F 9 M	<b>43 F</b> <b>31 M</b>
<b>Years of experience</b>	0-5				12		<b>12</b>
	6-10	3	1	<b>4</b>	5	3	<b>8</b>
	11-15	2		<b>2</b>	19	2	<b>21</b>
	16-20		1	<b>1</b>	9	4	<b>13</b>
	21+	1		<b>1</b>	9	11	<b>20</b>
<b>Role</b>	Teacher	6	1	<b>7</b>	40	10	<b>50</b>
	SLT		1	<b>1</b>	3	6	<b>9</b>
	Academics				6		<b>6</b>
	Local adviser					1	<b>1</b>
	External specialist				4	3	<b>7</b>
	Other staff				1		<b>1</b>

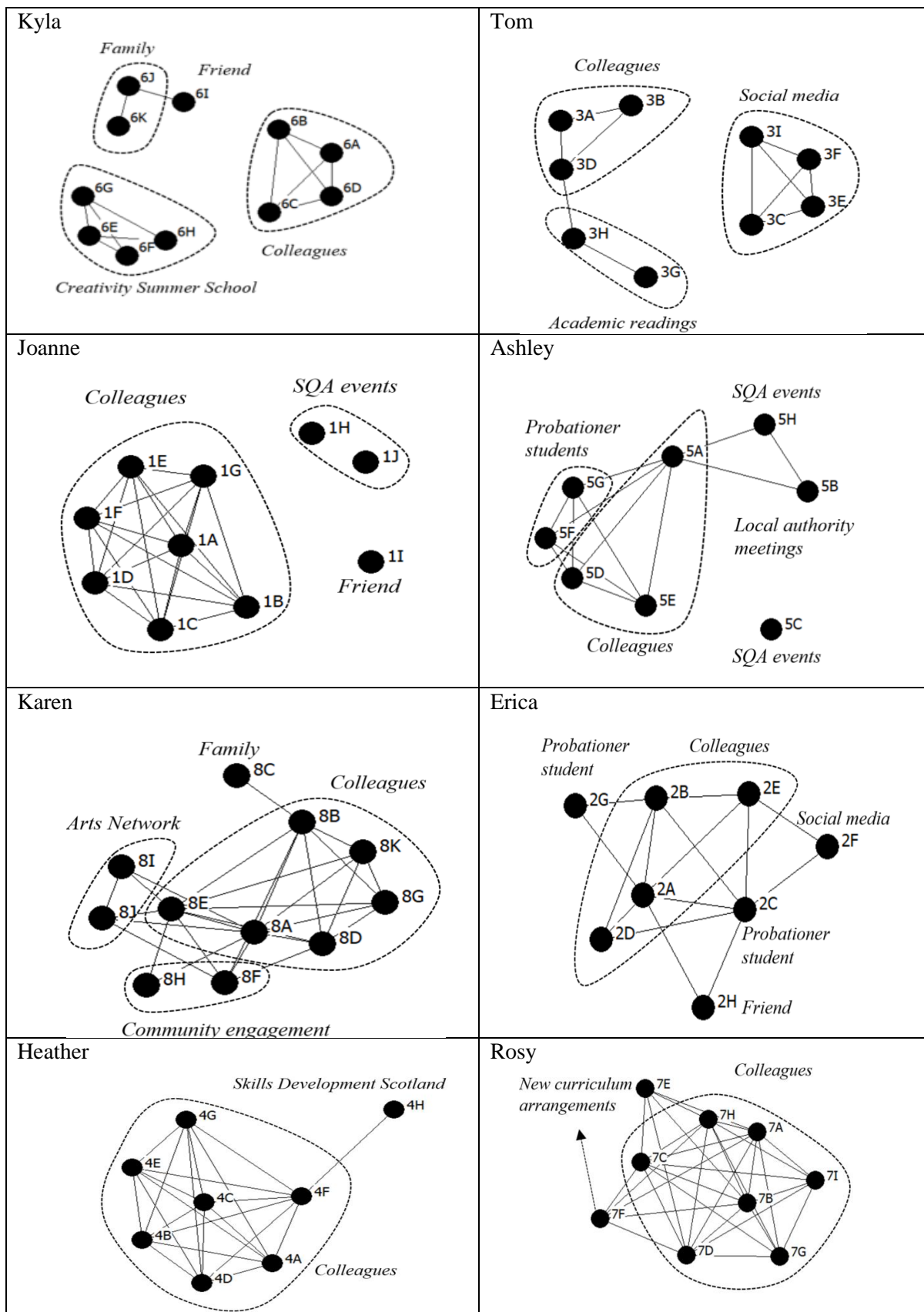
Teachers mentioned a number of reasons to form and activate their connections. Figure 2 shows who the alters were, whether they were in or beyond school ties and includes negative and challenging tie information. Figure 3 illustrates the networks with annotations to indicate the context of tie formation. The majority of the ties were formed as a result of working in the same schools. Other reasons included attendance at events (e.g. Scottish Qualifications Authority<sup>2</sup> (SQA) summer school), social media interactions, academic readings, community engagements (e.g. local networks of schools and organizations) and discussion of new curriculum arrangements in Wales (e.g. cluster school meetings). It occurs that ego-networks may include both human interactions as well as material interactions (e.g. articles, social media sites). Considering the nature of data generation about alters, I will only focus on human interactions (see Tronsmo & Nerland's (2018) research for a socio-material perspective to curriculum making).

Consideration of these contexts is important to enhance opportunities to maximise the potential of the network, and also to identify gaps. In the case of this study, colleagues dominate the networks, whereas the lack of presence of people beyond the immediate school environment can be a potential area where curriculum making networks may be better resourced. It is also important to consider here that forging ties might be involuntarily (e.g. working in the same department) or arise out of a genuine interest to connect with certain people. It might be for various purposes including rational choices, strategic or instrumental decisions or genuine interests in certain topics. Thus, the nature of connections and content of ties are crucial to explore in network research.

Returning to the structural features of the networks, Figure 3 illustrates how some of the networks appear to be more connected, whereas, in other cases, there seem to be separate components in the network. These will be examined by looking at: density; how connected the

<sup>2</sup> For more information, visit: <https://www.sqa.org.uk/sqa/70972.html>

alters are; and, effective size, referring to the different 'pots' of information in the network. I will explain these constructs further in the next section.

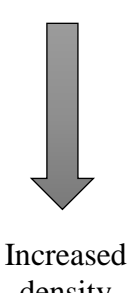


**Figure 3.** Curriculum making networks (excluding the ego) with annotations of tie formation context (the order is based on density, starting with the lowest)

### Structural characteristics of the networks

Density, effective size and the size of the network for each ego are presented in Table 3 and the order in Figure 3 illustrates these numbers. I will discuss here the networks of Kyla and Rosy, as they represent the two ends of the density spectrum, in order to explore what these structural measurements may mean regarding curriculum making.

**Table 3.** Density, effective size scores and size of the network

	Ego	Density	Effective size	Size of the network
	Kyla (6)	0.25	8.45	11
	Tim (3)	0.30	6.55	9
	Joanne (1)	0.46	5.8	10
	Ashley (5)	0.46	4.75	8
	Karen (8)	0.50	5.9	11
	Erica (2)	0.53	4.5	8
	Heather (4)	0.78	2.5	8
	Rosy (7)	0.86	2.11	9

The density of Kyla’s curriculum making network was measured as 0.25, meaning that 25% of possible ties in her network were evident, and 75% of them were missing. Kyla’s position in the network was bridging a set of unconnected alters, offering access to different sets of information that were not necessarily evident in other components.

It is really nice to get a different perspective because it comes from an external agency rather than being based in a school. It is sometimes good to get out of a teacher perspective. *Kyla*

These perspectives derived from family-friendship ties – a summer school about creativity in curriculum – and from her colleagues. For example, alters from a creativity summer school contributed to her understanding of curriculum making in different ways, which was her voluntary attempt to forge ties as a result of her interest in creativity in curriculum:

6F advocates big questions [...] A unit of work could come from just one question, and it is so flexible that you can go on a lot of different tangents. You can use it for many curriculum outcomes and organisers as you like. *Kyla*

On the other end of the spectrum, Rosy’s network had a density of 0.86, indicating a higher level of connectedness of alters. Rosy’s network excluding ego (herself) is illustrated in Figure 3 and shows a complete network in which everybody is connected, unlike Kyla’s where we see three distinct components. As indicated earlier, the level of density is dependent upon both ego’s perspective and also the time of research activity, as Rosy’s account illustrates:

I had connections with academics last term, and I should perhaps have more chat, but you are just so busy and getting on with it, you kind of do not have time. I think pioneer schools would have links with academics, but we just get on with it. *Rosy*

The majority of the ties were school-based relationships, and there were two ties formed beyond her school. This dense network enabled Rosy to disseminate information related to the

new changes, effectively in her school, in order to create a consensus and move things forward. This was important in the context of Wales, as dense networks may encourage orientation towards change (Moolenaar, Slegers, & Daly, 2011) and support consistency. On the other hand, it might be argued that the imaginative nature of the network might be limited in Rosy's case, as she attempted to '*keep things in the house [...] and create the resources within their school for their students*'.

My main argument here is that these structural characteristics help us better understand curriculum making, yet only in a partial way. Teachers' roles also shaped how the network is structured, as Kyla was teaching English, and Rosy was a curriculum lead alongside being a senior leadership team member and a teacher. This required her to oversee curriculum making at school level, which was not the case for Kyla. This is another individual difference related to the state of mind in terms of the teaching profession. Kyla felt dissatisfied and was planning to leave the profession. This was one of the reasons for forming ties with alters from the creativity summer school, as she could feel a sense of community with like-minded people in order to discuss her frustrations. This resonates with März and Kelchtermans' study (2020), emphasising the important role of informal and beyond school ties. This illustrates that teachers' self-motivated roles, organizational context and practices, and attitudes towards curriculum reform may explain different curriculum-making practices despite network characteristics.

#### *Compositional characteristics of the networks*

In the next part of this section, I shall discuss the compositional features of the networks, to explore different proxies for similarity and/or diversity in curriculum making networks. Table 4 presents the proportions of similarity in relation to different categories for each ego's network. The similarity regarding gender and years of experience was found to be related to how the schools were formally organised into subject departments as opposed to being a deliberate choice in curriculum making. Thus, I will explain the composition regarding the role, subject background, and context, as these offer an original contribution to the discussion of diversity in curriculum making networks.

**Table 4.** Proportions of similarity in different categories in ego-networks

Ego	Gender	Years of experience	Role	Same subject only	Same school only	Same school and subject	Not same school or subject
Joanne	70%	20%	80%	50%	70%	30%	10%
Erica	87.5%	37.5%	<b>87.5%</b>	<b>100%</b>	37.5%	37.5%	<b>0</b>
Tim	77.77%	33.33%	<b>33.3%</b>	44.4%	<b>33.3%</b>	11%	33.3%
Heather	<b>37.5%</b>	<b>0</b>	75%	62.5%	<b>87.5%</b>	<b>50%</b>	<b>0</b>
Ashley	<b>100%</b>	12.5%	50%	87.5%	37.5%	12.5%	<b>0</b>
Kyla	45.45%	<b>54.54%</b>	81.81%	45.45%	36.36%	36.36%	<b>54.54%</b>
Rosy	66.66%	22.22%	44.44%	<b>33.33%</b>	77.77%	22.22%	11.11%
Karen	45.45%	27.27%	54.54%	36.36%	45.45%	<b>9.09%</b>	27.27%

*Roles.* Regarding the roles of alters, six broad categories were identified: teachers, senior leadership team members, academics, local advisers, external specialists and other staff members. Figure 3 demonstrates how while some egos tended to connect with alters who have the same role, others tended to have a greater variety. His network stands as being somewhat unusual, comprising several academics. Tim strategically sought research evidence behind

curricular decisions and intended to have philosophical conversations about curriculum policy and change.

CfE is not fit for purpose, not resourced properly [...] CfE is a data desert. They [Academics in his network] have research evidence behind it, so I like to listen to that. *Tim*

Such heterophily, which does not indicate diversity as there are five academics, can promote independent thinking (Borgatti & Ofem, 2010), yet whether the content of such conversations is complementary or not affects how such heterophily mediates curriculum making (Anderson, 2010; Kelchtermans, 2006).

In contrast to the genuine interest to form ties with academics in Tim's case, the majority of the ties were involuntarily formed in subject departments in most of the networks. Looking at the meaning of the relationships within the departments, especially with the head of the department, was observed to be important. For example, Ashley's case illustrates how a negative tie can obstruct curriculum-making practices which constructs a relational evil in her network:

This is a tricky relationship. She [5E] does not even know what I teach. She can give me no advice or any tips about improving the curriculum [...] She is a Modern Studies teacher, so she goes to Modern Studies meetings, but she never comes to our meeting. *Ashley*

*Subject background.* Spillane (2005) argues that teachers' subject backgrounds can affect the structure and culture of teachers' interactions. A recent study (Crick & Priestley, 2019) also showed that this difference can influence the content and direction of making decisions in curriculum making activities.

Erica, a History teacher, was only connected to the alters who had a History background, whereas subject diversity is observed in Rosy's network. One of the reasons for this similarity in Erica's case was her strategic attempt to get insights into History exams through her network. The way she conceptualised curriculum might explain this tendency as she saw curriculum as 'a setting a way to SQA'. In addition to the aforementioned multiple roles that Rosy held, a structural change was observed in her school that was the reconfiguration of subject departments to learning development teams, as a response to the new curriculum reform. These teams consisted of different subject teachers and required collaborative working that Rosy was overseeing and guiding. In the same national context, Karen's argument for communicating with other subject teachers seem to be unconnected to these structural factors:

The nature of my subject area [Art] is also about networking. From when I was in university, you know with galleries and stuff; it is quite a social subject. Many things we do is usually outside of the school. *Karen*

These personal and structural factors were not evident in Erica's case. Erica's concern was mostly around attainment levels. Hence, this suggests contextual and individual factors should be considered in order to understand how subject similarity can generate and mediate curriculum-making practices.

*Context (In and beyond school ties).* There is much research to suggest that teachers tend to connect with geographically close colleagues (Coburn & Russell, 2008; Reagans, 2011) and in

fact, schools' physical infrastructure has a potential to facilitate such interactions in schools (Spillane et al., 2017).

As presented in Table 3, I will explore the networks of Tim and Heather to discuss the two ends of the similarity spectrum. Most of Tim's connections (6 out of 9) were beyond school ties. Beyond school ties can be utilised as a bridge to access a new network (Anderson, 2010), which was observed to be the case for Tim. He was in a strong position to draw new and non-redundant information (Daly & Finnigan, 2010) to his school practice. This would include research evidence related to curriculum making, cognitive science on teaching and learning. Yet, such information was perceived to be inapplicable to or conflicting with school level practices due to tensions between the vision set at national level and a perceived lack of support. This exacerbated his feeling of frustration and sometimes hindered his curriculum making practices.

Vision is cheap; vision is a great thing. Anyone can stand there and give a great vision. If I want to translate vision into reality, I need to invest in x, y and z. They invest x, and they hope teachers to fill y and z. They are falling off from the bus, and they just can't cope with it. *Tim*

Another incompatibility was evident in Heather's case with 4H, who was somehow still connected to her school as they worked on a project to develop a joint course with Skills Development Scotland<sup>3</sup>:







There is a political thing going on. I just feel our voice is not heard. I always focus on what is best for the kids, and I think our priorities are different. *Heather*

This suggests that even though beyond school ties bring different perspectives and novel information, which may not be available in the immediate workplace, they would need to first be filtered through personal lenses and considered, either complementary or conflictual for effective and sustainable curriculum-making practices. What we see in Kyla's beyond school ties, for example, was a perceived milestone in her pedagogy that transformed her thinking about curriculum making and helped her imagine different possibilities.

Based on the empirical data, I would argue that density in beyond school ties, as well as the perception of the tie (e.g. negative), subject background and the roles of the alters and ego are the meaningful features to make sense of curriculum making practices (which are illustrated in Figure 4). Next, I shall discuss the content of the curriculum making networks as another proxy to understand what flows in the networks.

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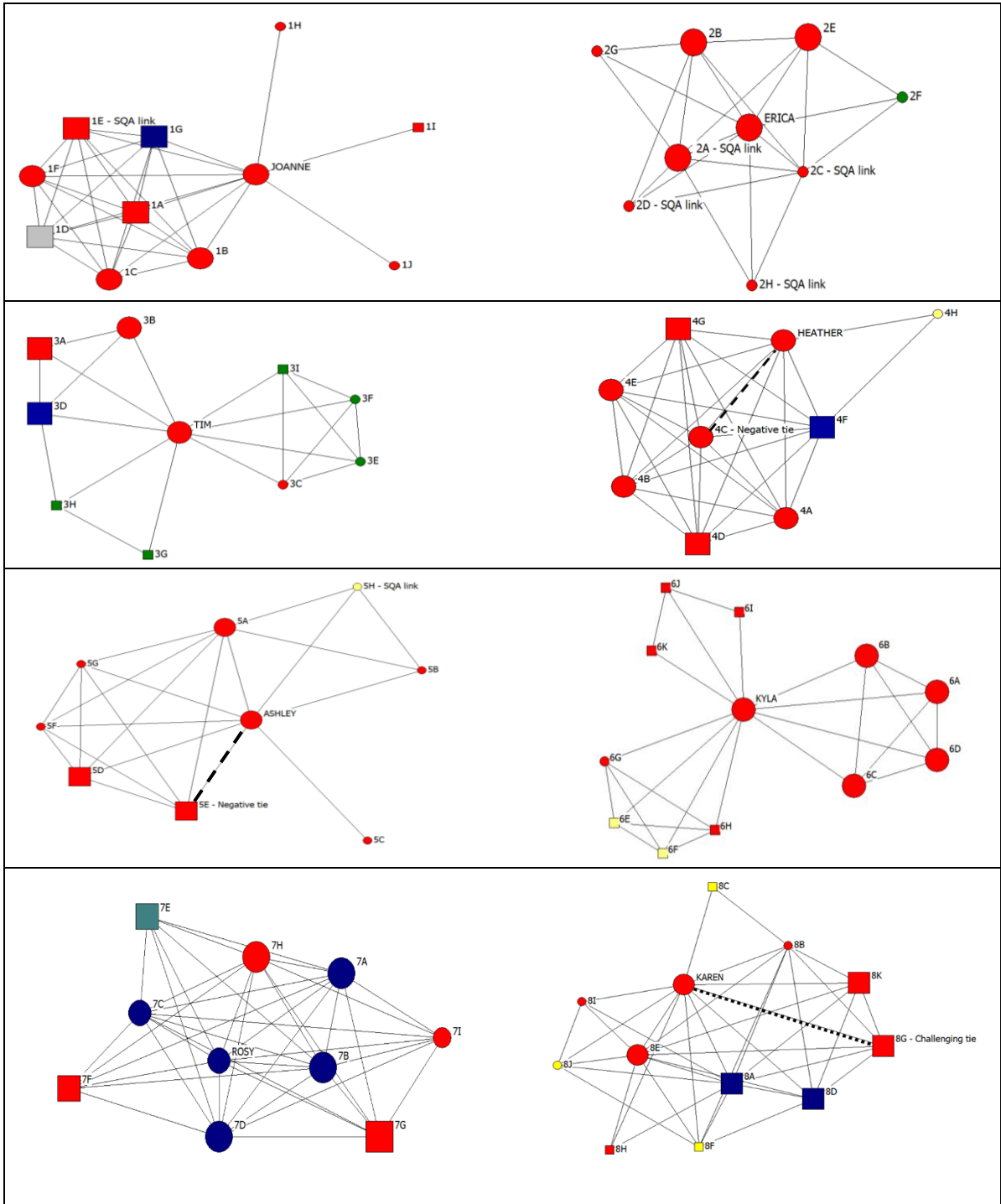
<sup>3</sup> A national skills organisation for Scotland. <https://www.skillsdevelopmentscotland.co.uk/>

	Teachers
	Senior leadership team
	Academics
	Local advisers
	External specialists
	Other staff members

Bigger nodes are in-school ties and smaller ones are beyond school ties.

Circle nodes represent the same subject background whereas the square ones represent different subject background.

..... Challenging tie  
 - - - Negative tie



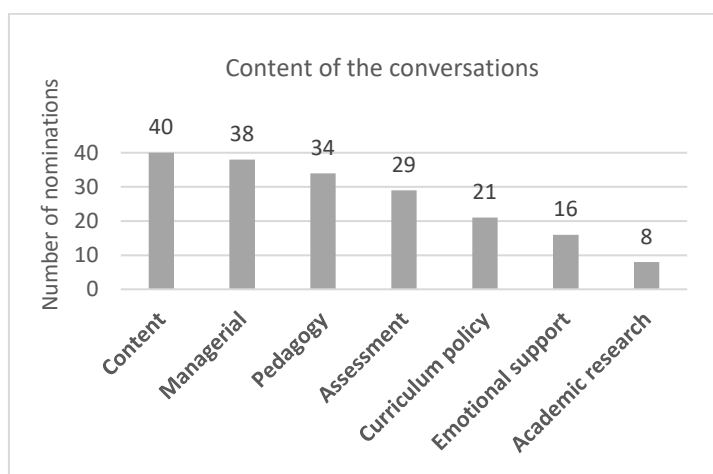
**Figure 4.** Curriculum making networks with role, context and subject background including negative and challenging tie information



### Content of the curriculum making networks

Curriculum making networks included a variety of topics from subject content and assessment related conversations to managerial or curriculum policy for advice and information seeking, obtaining material and emotional support. As an overview, Table 5 summarises main topics of the conversations held about curriculum making: content (e.g. subject-matter knowledge); managerial (e.g. day-to-day practicalities); pedagogy (e.g. instructional strategies); assessment (e.g. marking scheme); curriculum policy (e.g. new curriculum demands); emotional support (e.g. coping mechanisms) and academic research (e.g. recent academic articles). The table below also illustrates the number of alters nominated for having a conversation on each of the topics. Most of the alters were nominated more than once. These conversations were held for different purposes such as advice and information seeking, material support or emotional support.

**Table 5.** Content of the eight curriculum making networks (some alters were nominated more than once)



*Advice and information seeking.* There were four sub-themes identified: the topics or issues related to the subject matter knowledge, exams, students and whole school practices. For example, subject-specific content was sought in the networks primarily when the connection could provide complementary insights into teachers' practices.

We have a different specialism. Her focus is on the acting and performing side and mine is on the technical side. Lovely balance...I would go to 6A for Drama.

*Kyla*

That also illustrates how new projects, in this case, the new drama curriculum, has potential in facilitating access to expertise and offer a space for collaborative work. One of the most recurrent advice-seeking topics was related to assessments, such as marking process, qualifications, meeting the Benchmarks (in Scotland). These pieces of advice were sought by other teachers who usually had formal or informal links with the SQA. A contrasting approach expressed by Tim, who did not seek advice on assessments, still underlines the impact of such changes and perceived lack of communication on curriculum making practices:

When something comes from SQA now, I take time and wait and wait. I see if they adapt or adopt. I don't worry about it too much. My curriculum sense-

making tends to come when I see how something is assessed, which is worrying because that can take two years. *Tim*

This exemplifies the ways in which personal factors shape advice-seeking behaviour in similar contexts. The data from the two teachers in Wales, on the other hand, revealed a different approach in this feature, reflecting a collective perspective. One reason might be related to the timing of the research activities in both contexts. At the time, the Qualifications Wales did not release the examination system and there was a change in exam papers in Scotland. This explains that besides personal factors, the ways in which curriculum principles are set and the timeline of curricular decisions at the national level equally influence how teachers seek advice through curriculum making practices. For example, Titley, Davies and Atherton (2020) argue that the situation in Wales could lead to a second phase in curriculum making practices where performative pedagogical decisions would be made after the introduction of assessment and qualifications processes. This is, in fact, similar to what Smith (2019) observed in Scotland in the context of History curriculum and how teachers selected content based on instrumental purposes.

*Material support.* Similar to advice and information seeking, teachers sought material support through their content, assessment and several managerial focused conversations. For example, the latter would include arranging laptops, sharing sitting plans or worksheets. This was particularly the case when teachers worked in the same department and shared classrooms. In the context of Wales, it appeared that the new curriculum reform played a role in facilitating the attainment of material support. For example, Rosy shared all resources related to informing the new curriculum policy as well as teaching resources within their school to enhance the quality of curriculum making, which was proved to be unlikely in some cases:

5F is the only person I give all my resources. I don't do this with everyone. But I do with 5F because she is also really good at making resources. She sends hers to me as well [...] And I do sell my resources on TES, which are really popular. *Ashley*

Reciprocity was also mentioned in other cases. One potential explanation of the difference between an individual and collective sense of curriculum making was a competitive culture:

Some teachers do not like to share their courses. I can understand their view. If you are going to judge me every year on my exam results, why would I help someone else? It is also part of the accountability agenda. *Tim*

*Emotional support.* Advice and information seeking and getting material support through networks were evident in all eight cases, whereas emotional support network was not always observed across cases. Teachers talked about coping mechanisms, shared frustrations, health and wellbeing in general. Not surprisingly, the alters who were nominated as very close, were the ones asked for emotional support. Teachers who had emotional support network highlighted the value of multiplex connections.

It is quite good therapy to talk with 6B. We think the same way when it comes to frustrations in our school, the things we enjoy, and we love taking part in. We are quite similar. *Kyla*

Overall, there were only 16 nominations from 74 alters with whom teachers talked about emotional support in curriculum making. Given that emotional support was closely linked with other indicators of the quality of relationship (Johnson, 2003), closer attention needs to be given to opportunities of expanding this sub-network.

## **Conclusions and Implications**

Curriculum making by teachers is a complex social and relational phenomenon. Social interactions of teachers, whether to make sense of curriculum related issues or to seek different kinds of support, are one way of navigating in this complex territory. In this study, the findings offer three generative mechanisms to explain teachers' curriculum-making practices, drawing upon teachers' ego-networks: relational goods and evils; national policy/practice and organizational context; and teacher agency. These have implications for curriculum making, mainly, the need for meso-level support mechanisms and opportunities for teacher professional development.

### *Relational goods and evils*

According to Donati and Archer (2015), relational goods and evils are emergent properties that are generated through social interactions over time and they are context- and activity-dependent. This research exemplifies relational goods as high-quality interactions, multiplexity of ties, and perceived reciprocal communications, which offer a strong potential in effective and sustainable curriculum-making practices. Relational evils can be negative ties, cultural and structural constraints, and conflictual ideas in the network, as perceived by the individual. Negative ties 'represent an enduring recurring set of negative judgements, feelings, and behavioural intentions towards another person' (Labianca & Brass, 2006, p. 597) that are arguably more influential on job satisfaction than positive relationships. Ashley's case was an example of this. This research offers an explanation of how these relational goods and evils influence the ways in which certain structural and compositional patterns in the network are observed and navigated at the individual level. This explanation is important as these relational goods and evils may generate certain modes of reflexivity (distinctive ways of navigating social actions (Archer (2007))), contributing to our understanding of why teachers act in the ways that they do (e.g. subversion of or compliance with policy). Implications of this finding for curriculum studies lie in the need to pay closer attention to the meanings attached to teachers' interactions, and how these emergent properties come into play to mediate curriculum-making practices. This also has an implication for teacher development, as the more teachers are aware of the relationality in their networks, the more they may be able to find ways to manage and improve their practices (Ryan, 2014).

### *National policy/practice and organizational context*

This research illustrated how curriculum network structure and culture can be shaped by the national practices and organizational context. Much research supports this finding (Coburn & Russell, 2008; Coburn et al., 2013; Penuel et al., 2009). The former would include curriculum policy, regulations, and support mechanisms offered to teachers, as well as the demands of them, and the latter may expose teachers to certain structural and cultural conditions, by means of which they act. The absence, or lack of, beyond school ties may limit seeing alternative future possibilities, which in turn hinders teacher agency. This finding implies several opportunities for national and local curriculum policy and practice, such as offering curriculum support mechanisms at the local level, reconsidering alternative ways of configuring departments (e.g. de Lima (2007)), assigning teachers' curriculum lead roles (e.g. Berebitsky and Andrews-Larson (2017)), and providing them with time and space to nurture and spread their ideas and practices. It is shown that in-school ties are still a dominant component of most

of the networks so there needs to be collegial, supportive and, at the same time, non-habitual ways of curriculum making as we know it, since in the absence of support from in-school or beyond school ties teachers tend to go back to traditional views about teaching (de Jong, Meirink, & Admiraal, 2019). This suggests that there needs to be programmes, including teacher education practices, that interrupt the ways teachers form networks and benefit from expertise and opportunities that the networks offer (e.g. Priestley & Drew, 2019). All these implications reiterate how the development of meso-level support mechanisms and roles to facilitate curriculum making is a key shaper of curriculum, and something that has hitherto been neglected in curriculum studies (Alvunger, Soini, Philippou, & Priestley, 2021, in-press).

### *Teacher agency*

Teachers' professional agency manifested through them taking self-motivated roles related to curriculum, their educational discourses and beliefs, and perceptions of curriculum and their subjects. A closer look at teachers' networks at the individual level revealed how these manifestations shape with others and what exactly teachers talked about regarding curriculum making in their networks. This finding underscores the value of meso-level support, teachers' engagement with shared sense-making activities and professional development at the conceptual and practice level; and furthermore, the need for a high trust environment where risk-taking is encouraged (Brown et al., 2016) for effective and sustainable curriculum making.

This research offers an original contribution to curriculum research by giving an account of extensive explanations of networks and sheds light on curriculum making as relational practice. It points to the need for more comprehensive research across wider populations of teachers and for interpreting the network data alongside in-depth qualitative explorations such as investigating the notion of reflexivity. One area for future research is to look at whether the shape and content of the networks can indicate distinctive ways of curriculum making. I would argue that qualitative network research and reflexivity together offer a powerful tool to theorise and understand curriculum making by teachers.

A generalization of the findings into a broader population of secondary school teachers in Scotland and Wales was not sought here. Instead of an empirical generalization (Danermark et al., 2002), it offers rich theoretical propositions, which explain the observable events about why, in which conditions, and to what extent questions offer an analytical framework (Danermark et al., 2002) to understand social phenomena in different contexts. Networks and their features represent a momentary 'snapshot' and, therefore, a large scale and longitudinal research would permit a more detailed account of teachers' curriculum-making networks. Moreover, future research could look into the mechanisms offered in this research to build up the theoretical underpinnings of curriculum making by teachers, and expand the implications this research has highlighted.

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