



Critical Mass, Social Networks and Collective Action: Exploring Student Political Worlds

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Abstract

This article explores the role of ‘critical mass’ and social networks in the generation of collective action. Drawing on qualitative and quantitative (social network) data, the article argues that both are pivotal in the process whereby collective action takes shape. The empirical focus of the article is student politics but it is argued that the mechanisms and dynamics identified have a much wider domain of application.

Keywords

campus politics, mixed methods, political recruitment, social cohesion, social network analysis, social worlds

In this article, analysing new empirical data, we explore the role of ‘critical mass’ and social networks in the generation of collective action. Specifically, we revise and then test Oliver and Marwell’s (1988, 1993; Crossley, 2008a; Kim and Bearman, 1997; Marwell et al., 1988; Oliver et al., 1985) hitherto untested theory of collective action using ethnographic data regarding student politics. Our definition of ‘collective action’ draws on the social movements literature, wherein it tends to denote ‘protest’ (e.g. Tilly, 2004), but also on Becker (1982, 1974), who conceives of ‘social worlds’ and especially ‘art worlds’ in terms of the ongoing collective action which generates and reproduces

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them. We are interested in the collective action constitutive of the emergent political worlds found on university campuses.

Student political worlds are of interest, in part, because they are accessible and researchable examples of social worlds and collective action more generally. They have an intrinsic interest too, however. Students have been prominent participants in a range of social movements and protests over the last one hundred years, begging the question, why? Furthermore, there is evidence for the UK that attending university has a politicizing effect on some students, albeit only a minority, that this holds not only during politically turbulent periods, such as the sixties (Marsh, 1977), but also during much quieter political periods (Crossley, 2008a), and that this effect is enduring, such that the university educated are disproportionately active in politics throughout their lives (Crossley, 2008a). Again this begs the question, why do universities have this effect?

Most explanations of student politicization and activism fall into one of two, equally problematic, camps. Some focus on the psychology of youth, claiming that young people have 'issues' which find expression in political protest (e.g. Smelser, 1968). The problem with these types of explanation is that they apply to young people in general when the evidence suggests that it is students in particular who are disproportionately politically active. Other explanations point to the influence of liberal educational values and the inculcation of a capacity for critical thinking within the university context (e.g. Marsh, 1977). The problem with explanations of this kind is that students do not always mobilize around liberal causes or in contexts where liberal values and critical thought are encouraged. They have mobilized around distinctly illiberal forms of politics, including national socialism and Islamic fundamentalism, and have mobilized within distinctly illiberal educational contexts such as China and Iran (Crossley, 2008a; Ibrahim, 2010). Furthermore, research by Crossley (2008a), which compared political inclinations and behaviours between sixth formers and undergraduates, identifying significant increases in political activity and group membership amongst the latter, found no significant differences in political identities and attitudes. We may question whether political identities and attitudes have the same meaning for the politically inactive as for the active but this finding is sufficient to suggest that university does not so much 'put ideas/values in student's heads' as allow them to put their ideas/values into practice. We need another explanation therefore; one focused specifically on the mechanisms facilitating collective action for those inclined towards it.

Critical Mass and Social Networks

In this article we consider an explanation centred on 'critical mass' and 'social networks'. A number of social scientific theories of critical mass can be found in the literature (e.g. Schelling, 1995) and the idea that large and concentrated populations are conducive to collective action is alluded to by various scholars (e.g. Tilly, 1978). However, notwithstanding our reservations regarding their strict rational choice orientation (see also Crossley, 2002, 2011), which we seek to redress, we find Oliver and Marwell's (1993; Marwell et al., 1988) formulation of this idea the most elaborate and relevant for our purposes. We therefore take their formulation as our point of departure. They make five key claims:

- 1 The individual costs of pursuing certain goods, especially public goods, often outweigh the benefits, creating a disincentive, but where costs are shared the balance can be tipped in favour of action. Pooling resources lessens costs such that a favourable ratio is reached and collective action thereby triggered.
- 2 Even public goods have differential levels of material value for different individuals and the number of actors required to tip the cost/benefit balance towards action is often reduced by 'big investors' who have both more to gain and more resources to offer.
- 3 Such individuals usually constitute a small minority. As such they are more likely to be found in larger populations. As in survey research, the larger the 'sample' the more likely minorities are to be found in significant numbers.

'Critical mass' has a double meaning here. Collective action presupposes that enough actors (a critical mass) are prepared to invest resources to tip the cost/benefit balance in favour of it but this is most likely to happen where big investors are involved, and big investors are more likely to be found in sufficient numbers in bigger populations (a critical mass). We add to this that, aside from cost/benefit ratios, certain forms of collective action, qua collective, require 'numbers' to be meaningful. A demonstration involving only a handful of individuals cannot generate the desired symbolic effect, for example, and may be demoralizing for those involved. Furthermore, in addition to 'big investors' collective action may require a range of interests, talents and resources, a precondition again more likely to be fulfilled in a bigger (and more diverse) population. Mass alone is insufficient, however.
- 4 Participants must form a single *network component* if they are to negotiate the combination of their resources and coordinate, by means of communication, their actions; that is, each must enjoy at least an indirect tie to every other (on 'components' see Scott, 2000; Wasserman and Faust, 1994).
- 5 Collective action is more likely where either the *density* or the *degree centralization* of this network is higher. 'Density' is the number of ties within a network expressed as a proportion of the potential number (Scott, 2000; Wasserman and Faust, 1994). A network in which nobody has any ties to anybody else has a density of 0. A network where everybody has a tie to everybody else has a density of 1. Most networks fall somewhere between. Higher density makes collective action more likely, for Oliver and Marwell, because the more people that know one another, the easier it is for them to communicate and thereby coordinate their actions. However, the need for high density may be obviated if most members of the network are linked to one or two individuals, who form a hub. Communication, coordination and organization are achieved in hub-centred ('degree-centralized') networks because, assuming they are willing and have the consent of their alters, hubs can 'broker' between everybody else.

In short, collective action requires enough people with sufficient interest and resources to bring it about (critical mass) but also requires that this mass is sufficiently and appropriately connected to allow for coordination (social networks).

We suggest a number of revisions to this theory. The first concerns the benefits of participation. We agree that collective action is often driven by relatively small numbers of actors who appear to have a greater than average subjective investment in it and we agree that those actors are incentivized – to deny this would be to deny their action meaning or purpose. However, we do not agree that such actors *always* stand to benefit disproportionately *in material terms* from the achievement of collective political ends. For some forms of participation, such as animal rights activism, it is difficult to identify any material stake for individual actors. This is true of the student activists discussed later. It is difficult in most cases to identify any material rewards attaching to participation, and certainly any material rewards that are not enjoyed equally by non-participants. Our activists' incentives were *ethical* and/or *symbolic*: for example, the pleasure of doing what one perceives to be good and the friendships, excitement, in-group status and sense of identity or purpose that derives from participation.

This point requires and allows us to reformulate Oliver and Marwell's 'big investor' idea. If some people are more willing to invest in collective action, we propose, it is often because events have forged a link, for them, between political participation and a range of ethical or symbolic rewards. Participation is integral to their individual identity and/or deemed rewarding.

However, we suggest that such rewards are seldom the focus of reflective, cost-benefit decision-making, at least for established activists, and tend rather to be tacitly assumed, on the basis of experience, in the context of a habitual readiness to fight for good causes. Action is purposive, as we conceive of it, but not fully economically rational. It is satisficing rather than maximizing, and it is socially-culturally embedded and shaped.

As a further consequence, network density assumes greater importance for us too. Networks are important for Oliver and Marwell because they facilitate communication and coordination. This is important in our version. However, drawing on the growing body of literature on the role of social networks in collective action (see Crossley, 2007; Diani and McAdam, 2003) we add two further points.

First, studies suggest that *dense networks*, especially where actors are tied to one another in multiple ways (*multiplexity*), generate the solidarity, trust, support, incentives, identities and situational definitions conducive to collective action, supporting 'deviant' cultural practices (Bott, 1957; Coleman, 1988, 1990; Gould, 1991, 1993; McAdam, 1982; Milroy, 1987). This point overlaps with our above observation regarding ethical or symbolic incentives. Protest can be rewarding because and to the extent that it involves participants in dense and multiplex networks which, in turn, bestow social and symbolic rewards on their members. Furthermore, it adds an important point regarding identity and situational definition. Activism is rooted in distinctive situational definitions, values and frameworks of meaning which, in order to be real for any individual actor, must be real for a network of others who will confirm that sense of reality for her. Likewise, activist identities must be recognized by similarly inclined others in order to feel real to the actor (Crossley, 2011).

Second, recruitment to social movements and protest is often achieved by means of pre-existing networks (Snow et al., 1980). Activists frequently report being recruited by friends and recruiting friends (1980). Moreover, they are more likely to follow through

on expressed interest in political projects where they have friends who do likewise (McAdam, 1986). And connection to an activist shapes the way in which individuals perceive activism, encouraging assimilation of a positive activist identity (Passy, 2001). This second point further revises Oliver and Marwell's account because it suggests that where networks already exist, interaction and mutual influence between their members may cultivate a critical mass of political interest that did not pre-exist it.

Of course, networks can inhibit activism too (Kitts, 2000; McAdam, 1982; Snow et al., 1980). Alters with no political interest may create distractions for the would-be activist and provide incentives for alternative activities, draining precious resources (including time). And where alters explicitly oppose protest they may take active steps to prevent the would-be activist from becoming involved. It is not networks per se that matter but connections to similarly (politically) inclined alters and an absence of ties to alters who oppose activism.

Critical Mass and Networks on Campus

Applying this to student political worlds, we suggest, first, that some students have an interest in politics and a desire to become involved which they are not able to translate into political involvement before university because of a lack of critical mass in their pre-university educational context. Compared to universities, sixth form colleges are tiny. Even if the proportion of students interested in politics remains constant across the two settings, critical mass is far easier to achieve in the university. For example, 2 percent of a sixth form population may mean one or two students only. In a relatively small UK university, by contrast, it would mean two hundred. Unless students come from a political family, whose members have ties to wider political communities, therefore, they may struggle to form a critical mass for activism until they come to university.

Furthermore, students have a good chance of finding like-minded alters at university in virtue of the Students Union, conceived both as a site of meetings, events, noticeboards (virtual and material) etc. and a source of resources, including meeting rooms, money and communication technologies. Union events and offices serve as network 'foci', in Feld's (1981) sense, drawing like-minded actors to the same locations, at the same times, and thereby increasing the likelihood that they will meet and form ties. For this reason we would expect the Union and its officers to be central in activist networks.

The existence of overlapping cohorts of students on campus tends to reinforce these processes. Activists in their second or third year on campus organize events which serve as foci, affording Freshers a pre-existing political world (network) to attach themselves to on arrival. Even if each new cohort had to initiate collective action from scratch, however, the university, with its uprooted 'immigrant' population of individuals looking to make friends, and their manifold opportunities for doing so, would be a conducive environment for the formation of dense networks between (critical) masses of like-minded actors.

Not all student activists arrive on campus with political aspirations, however. Some are recruited by friends, only becoming politically involved or inclined as a consequence of this. Politically active students intersect social circles, to borrow Simmel's (1955)

image; they have friendships outside of their political worlds which they can draw on for recruitment purposes – ‘recruitment’ here entailing anything from a gentle nudge to a sustained campaign of persuasion.

Finally, university entrance, for many, entails breaking or slackening ties with alters who make demands on their time and whose expectations and capacity to impose sanctions may restrict opportunities for taking up new activities and identities. At the very least, pedagogic relations in higher education are much less controlling of a student’s time than those in further education, affording students time to pursue new interests. And the move to university partially disembeds the student from friendship or family relations which reinforce particular patterns of behaviour and identity, facilitating a shift in those patterns should the student elect to make one.

The Study

In order to test and further explore these ideas empirically we conducted an ethnographic study of the student political world at the University of Manchester. Running between January 2009 and December 2010, the main part of the study comprised semi-structured interviews with 53 student activists, who were asked a series of open-ended questions regarding their activist career, network and the political groups to which they belonged.

Sampling took two forms. Key political groups were identified via posters, campus activities, the student newspaper and the Union website; their chairs were approached for access and when access was granted (we were not refused access to any group) group members were approached either at meetings or by way of email. This purposive strategy was then supplemented by a snowballing approach. Interviewees were asked to nominate others and/or pass details of the project on to them.

Snowballing biases our findings. If we ask interviewees to identify other interviewees it should come as no surprise that they form a network. This was offset by our purposive sampling, however, which afforded us multiple entry points to the campus political world, allowing us to identify disconnected parts of that world if they existed. Furthermore, snowballing has advantages in that it both allows us to trace networks and affords access to activists who are unreceptive to cold calling.

The interviews were supplemented by participant observation of key events and meetings and regular monitoring of flyers, posters and the student newspaper. Key events during the research process included: a four-week occupation of university buildings in response to events surrounding the Israeli invasion of Gaza in December 2008; an afternoon-long occupation of the roof of the campus branch of the Royal Bank of Scotland; and Union election meetings.

Given our theoretical concerns it was important to assemble data from these sources which we could analyse by means of the techniques of formal network analysis (Scott, 2000; Wasserman and Faust, 1994). We derived six networks:

Network One involves all 53 activists whom we interviewed, deeming them tied where we had evidence *both* that they socialized together as friends *and* that they worked together on political projects.

Network Two involves each of the 23 groups to which our activists belonged, deeming these groups tied where we had evidence of cooperation between them.

Network Three links those of our 53 interviewees who belong to one or more of the same groups.

Network Four links those of our 23 groups which share one or more members (from the 53 interviewed).

Network Five was derived by adding Networks One and Three together: activists are tied *either* where we have evidence of friendship and political cooperation between them *or* where they are members of the same group.

Network Six was derived by adding Networks Two and Four together: groups are tied *either* where we have evidence of cooperation between them *or* we have found overlaps in their membership.

Networks Five and Six, which are visualized in Figure 1, include all ties of which we are aware between our activists and groups respectively. For reasons of space we focus exclusively on these networks in the analyses which follow.

Formal network analysis is important because it lends rigor and systematicity to our observations of relations and affords powerful and revealing ways of exploring the patterns they form (Crossley, 2010a, 2010b; Edwards and Crossley, 2009). However, we are sympathetic to recent arguments regarding the need to add qualitative depth to network analysis by exploring the negotiation of meaning and identities in social relations (Crossley, 2010a, 2010b; Edwards and Crossley, 2009; Emirbayer Goodwin, 1994; Mische, 2003). We therefore combine quantitative and qualitative forms of analysis in this article. All network computations and diagrams were performed using Ucinet (Borgatti et al., 2002).

Results

Of our 53 interviewees, 29 indicated that they became politically active after arriving in Manchester and a further 22 indicated that they had become more political since arriving. Such retrospective assessments are not ideal but on further questioning most were able to spell out in what ways they had become more active and, as this finding corresponds with Crossley's (2008a) earlier cross-sectional survey evidence, we believe that they are robust. Coming to university had a politicizing effect on our interviewees. But why?

Critical Mass

As noted, we believe that the size of the university student population played a key role. This was supported by our qualitative data. Many students, unsolicited by us, explained their politicization by noting that their opportunities for involvement had been restricted before coming to university by lack of access to politically active alters. Coming to a big university in a big city changed this. For example:

I came from a very small countryside town. There's not much going on. Now I'm in a big city there's meetings going on all over, all over demonstrations, strikes, everything like, you, you normally get involved in something and it's much easier to get active within a city than it is outside. Plus I'm a student at a university which is quite a radical university already, so it's very easy. (Interview 5)

I came from because I think it was erm a small town and the school I went to was quite middle class. There wasn't really much going on [but] university, partly because you meet so many people, new people who have got different views or come from different backgrounds [is different]. (Interview 10)

Coming to Manchester you can't help but have politics all around you, whereas where I'm from we just didn't have that. (Interview 14)

I didn't do that much because back, back in [place] where I lived there wasn't unfortunately that much going on ... it helped obviously coming to university a lot because there's a hell of a lot more opportunity to get involved ... Everyone I hung out with at home is quite apathetic to be honest ... since university I've kind of met people via other people and joined them from them, so it was probably easier. (Interview 2)

Furthermore, again supporting our theory, it was very common for interviewees to note that they had much more free time at university, and that this made a big difference. Lecturers made fewer demands on their student's time than sixth form teachers had, affording students the control over their time necessary for political action.

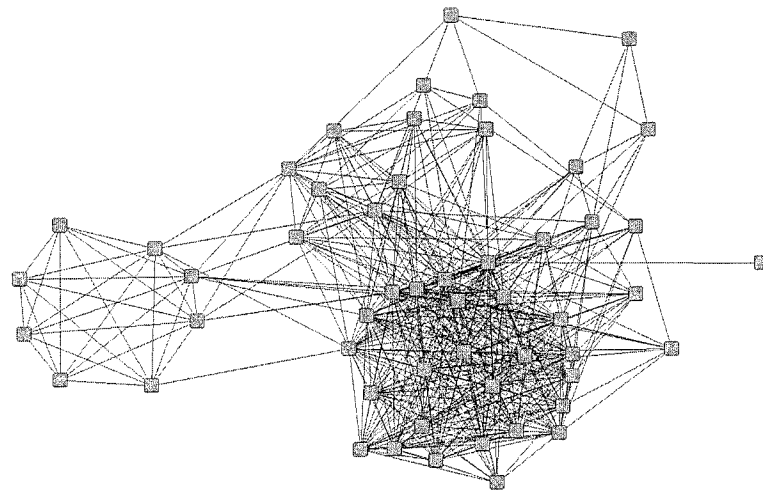
Network Components

Having found support for the idea that politicization is an effect of a critical mass of would-be activists on campus we sought to establish whether members of this mass were connected. They were. As Figure 1 illustrates, Networks Five and Six each form a single component: every node has at least an indirect tie to every other. This is significant because it indicates that gossip, information or other resources flowing through these networks could, in theory, reach every node. Everybody in our political worlds is 'in the loop'.

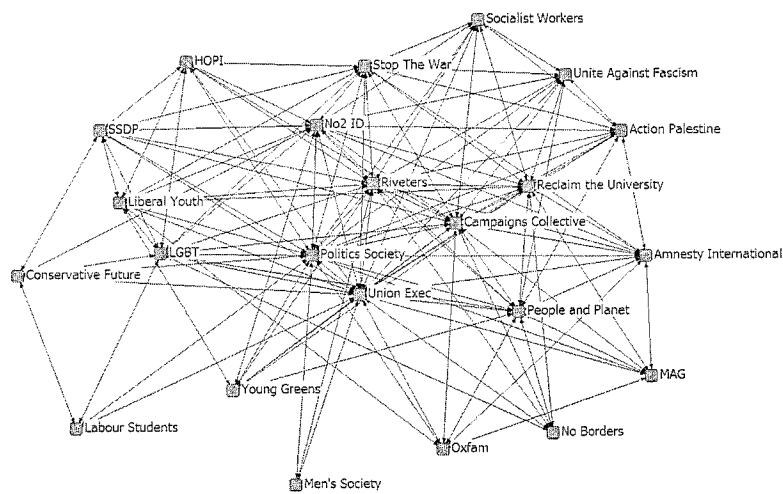
We can push this point further by considering *average degree* and *geodesic distances*. Degree quantifies connections in two ways. First, it is used to indicate how many ties any given node has. If I have five ties to others then my degree is five. This figure can be averaged for the network as a whole. Second, degree can be used to express the *path lengths* separating any two nodes. Friends of my friends, if I have no direct tie with them, are at two degrees of separation from me; friends of friends of friends are at three degrees and so on. Where they involve the shortest distance between the nodes in question (measured in degrees) *path lengths* are termed *geodesic distances*.

Average degree for Network Five is 19 and for Network Six it is 11. In other words, each individual activist is connected, on average, to 19 other activists and each group is connected to 11 other groups. This equates to density scores of 0.37 and 0.52 respectively; 37 per cent of all possible ties are actualized in Network Five and 52 per cent in Network Six. Furthermore, in each case almost 50 per cent of alters are at a geodesic distance of 2. This means that, where not directly tied to one another, the vast majority of individual activists and all of the groups are indirectly connected at only one remove. This political world is tightly integrated. Information, rumours, resources and directives are likely to pass very quickly around it.

We cannot yet establish that such integration facilitates collective action (see below) but these findings are consistent with that claim and support our claim that the politically



Network Five: Combined ties between individual activists ($n = 53$)



Network Six: Combined ties between political groups ($n = 23$)

Figure 1. Networked student worlds

inclined on campus will tend to gravitate towards one another. Our critical mass of activists is also a connected mass: a cohesive network.

The Students Union as a Centralizing Focus

We suggested that the Students Union is likely to serve as a central focus facilitating network formation. This claim too was supported. Of the activists, 51 per cent claimed

that they became involved in student politics by means of the Fresher's Fair (a Union event) and a further 19 per cent became involved by means of some form of Union-related activity. This suggests the importance of the Union as a focus. In addition, a number of interviewees indicated that much activism on campus was facilitated by 'the same two [Union officials]' (Interview 8). Indeed, there was a strong sense in the interviews that Union officers generally were very active as organizers and facilitators.

This was reflected in the centrality of both Union officers and offices in Networks Five and Six. There are various ways of measuring centrality in a network (Scott, 2000; Wasserman and Faust, 1994). The three most common are *degree*, which, as explained above, is a measure of how many ties each node enjoys; *closeness*, which involves summing, for each node, the geodesic distances separating it from every other; and *between-ness*, which measures how many times each node falls within the shortest path connecting any and every other two nodes. These measures of centrality do not necessarily correlate and each has a distinct significance but we hypothesized that the focal and organizational role of the Union would cause both its officers and offices to have an elevated score for each.

To test this on Network Five we divided our interviewees into two categories: Union officials ($n = 12$) and others. We then compared the average scores for each category for each of the above measures, gauging the difference with a one-tailed t-test.¹ Union officials were much more central: 27 compared to 17 for *degree*, 66 to 55 for *closeness*, and 47 to 13 for *between-ness*, with $p < 0.00$ in each case.

Because we only had two official Union offices in our network, the Executive and the Campaigns Collective, we could not apply the same test to Network Six. However, we were able to determine the rank position of these two offices for each measure and their relation to the average score. For each of the three measures of centrality the Executive was ranked top and the Campaigns Collective either third or (for *between-ness*) fourth.² The Executive was more than two standard deviations above the mean for each measure and the Campaigns Collective more than one standard deviation for both *degree* and *closeness*. This finding supports our contention that the Students Union is a hub around which the network of activists and groups forms.

Recruitment, Symbolic Interaction and Framing

The Union is only one mechanism of recruitment to the student world, however. We hypothesized earlier that activists recruit other students, who are not currently active and who they have met either on their courses or in halls of residence. Again this was supported. Seventeen per cent of our sample claimed to have been drawn into student politics by friends and although some expressed opposition to the idea of 'recruitment', on account of a perceived implication of either power or formal organization which they found disagreeable, many claimed to have attempted to draw non-activist friends into either specific actions or groups.

Interestingly, moreover, whilst most insisted that alters could only be recruited where they had a pre-existing political interest that could be built on, many described the recruitment process in terms resonant of what social movement theorists (e.g. Snow et al., 1986), following Goffman (1974), call 'framing'. Recruitment involved symbolic work:

If there's a need for mm numbers then I'll recruit friends but sometimes if I know they're mm they've got a bit of interest in it I'll pick up on that and kind of entice it ... if I know someone's semi-interested ... and that can be kind of er brought out then I'll try to get them involved. (Interview 15)

If they want to get involved in conversation then they're already more interested and so you kind of I suppose, you've kinda, kind of got a hook and recruit them in that way but it's entirely what their kind of view is ... (Interview 2)

... verbally sort of invited you know erm my friends along to things ... I know some of them would be interested ... I'd say 'oh we've got a meeting tonight, do you fancy coming down?' or erm y'know 'there's a demo on d'you fancy coming along?' Or even just talking to them about stuff and say 'oh, did you hear about that?' 'What do you think of this?' ... but as I say it's mainly to those who ... are more interested in the first place ... (Interview 3)

Beyond recruitment, these quotations are also important because they are indicative of processes of situational and identity definition within student political networks. 'Talk' was a central theme for many of our interviewees. Activists claimed to spend a lot of time talking, apparently enjoying discussion and deeming their conversations a crucial factor in arousing and sustaining their political commitment. One described his recruitment on this basis:

It was the most interesting conversation I've had yet at university ... I thought there'd be lots of intellectuals in relation to university and there were not ... I was kind of like 'where's the conversation?' and I came to [meeting following Fresher's Fair] and people were talking about things that I already believed in ... I don't think I was looking for something political but just for like, like-minded people, and it turned out that like-minded people do, do this. (Interview 8)

Conversational networks between activists are important both because they sustain identity and situational definitions and because, as this interviewee indicates, the pleasures of deep discussion are an important incentive for remaining in the network and investing in its various other activities. As we see below, everyday conversation was often the context out of which decisions to act collectively emerged.

Density, Multiplexity, Cohesion and Collective Action

Networks are more effective in facilitating collective action, we argued earlier, where dense and multiplex. Increases in density afford greater potential for solidarity, support and participation incentives to emerge within a network, simultaneously contributing to the maintenance of salient situational definitions and identities. This is a difficult claim to test using network analysis because there are no established norms of density against which its magnitude can be assessed and density is notoriously sensitive to both network 'order' (number of nodes) and the type of relationship involved (Scott, 2000).

An important ethnographic observation suggested one way in which we might circumvent this problem: *contentious politics*, that is, direct action in pursuit of issues which lie outside of the party-political mainstream (Tilly, 2004), enjoyed a much higher

profile than the mainstream activity of parties and pressure groups, who appeared to struggle to organize and were relatively invisible and ineffective by comparison. A pact between the Labour and Conservative groups during Union elections, to fight against the contentious groups, underlined this. Both parties felt that campus politics was dominated by contentious groups. Given our argument, above, we would therefore expect the contentious faction within our network to be denser than its mainstream counterpart.

Having first partitioned our activists into 'contentious' ($n = 35$) and 'mainstream' ($n = 18$) camps, on the basis of their participation or not in direct action, we had two ways of testing this. Using a *core-periphery routine*, which explores the extent to which any network can be divided into a core of very densely tied nodes and a periphery of much less densely tied nodes, and assuming a dense core was found, we could measure the representation of contentious and mainstream groups within that core – predicting contentious actors to be overrepresented. Alternatively, we could simply compare the density of the two camps. We elected to do both.

Core-periphery analysis revealed a core of 30 nodes in Network Six. The density of the core was 0.816 compared to 0.225 in the periphery, and the density of ties between core and periphery was 0.145. This suggests a strong structural cleavage in the network between core and periphery. Cross-tabulating this with our contentious/mainstream partition we found that all 30 members of the core were contentious activists, with five contentious and all 18 mainstream activists in the periphery. As predicted, the core of the network was contentious. And the difference in densities was large.

Simply comparing densities between the contentious and mainstream partitions reduced this contrast slightly but the difference was still marked (contentious = 0.637, mainstream = 0.281). Furthermore, where the average degree amongst contentious actors was 24 (SD = 9) it was 10 for mainstream actors (SD = 4), and the difference, as measured with a one-tailed t-test,³ was highly significant ($p < 0.000$). The more (collectively) active contentious partition within the network was considerably denser.

This evidence is not incontrovertible. Given that the contentious partition was also bigger and – notwithstanding tensions between Trotskyist, anarchist and 'new social movement' factions – more ideologically homogenous, their dominance and greater capacity for collective action was a function of their critical mass and network density *combined*. Furthermore, in the ongoing process of social life, collective action and social networks are mutually generative in a way which defies linear cause-effect relations: networks facilitate actions and actions (qua foci) generate networks. As we have said, however, mass per se is of little value in relation to collective action in the absence of connection. And we are confident that most of the network ties identified in our study pre-existed the wave of campus activism that we observed. On this basis we believe that we have good evidence to support the claim that network density facilitates collective action.

Our qualitative data further support this and bring multiplexity into the picture too. We observed that members of the contentious partition, in many cases, lived with other members. Some had romantic ties and all were friends. As one put it:

... we're generally just a big friendship group ... go for curries, we go drinking together, live together [laughs] ... we play Xbox really [laughs]. (Interview 5)

Because of this plans for collective action tended to emerge within the context of everyday activities:

... it can be in mealtimes just talking about things like that, you know ... over a pint say, shall we do something and then next go out and do it ... (Interview 4)

This generated a sense of obligation for all involved in the cohesive sub-network to participate in the proposed action – albeit an obligation which actors could negotiate their way out of if they had good reason. Participation was expected and, insofar as other members of the network would be busy working on the action, weaving participation into their routine socialization qua friendship group, it was often easier and less costly to participate than not. Furthermore, dense, multiplex ties between activists supported collective action because they allowed salient situational definitions and identities to be maintained. Activists tended to keep one another ‘in the frame’:

... when you have friends that aren’t activists they can’t understand why you’re getting up at six o’clock to go to a picket line or to knocking on doors campaigning in the various groups but and so it’s good to be around people who understand why you’re doing it. (Interview 5)

Too Much Cohesion?

Networks can perhaps become too cohesive for purposes of collective action, however. Tightly bound groups, rooted in close friendship, can seem forbidding to outsiders who are thereby dissuaded from full involvement. ‘Tie signs’, as Goffman (1971) calls them, which communicate strong links between actors, can be perceived as barriers (Crossley, 2008b). One interviewee, for example, a Masters level student newly arrived on campus, commented that:

... there’s quite a few undergraduates in their third year and they’ve kind of got ... quite a sort of closed group of friends and I’ve sort of come from the outside and erm and erm I don’t really have that much time to socialize and they’ve got their sort of pre-existing groups but they are sort of welcoming ... (Interview 3)

Or from a different interviewee:

... there was a lot of political stuff going on sort of but behind the scenes a bit. And it’s quite hard to get involved, I felt, unless you knew someone or were brave enough to go for a meeting. (Interview 7)

Furthermore, at least one (leftist-contentious) group elected deliberately for closure and exclusiveness in relation to some of their activities:

[It’s] a group of friends and a political group and we sort of said quite openly that’s what we want to do because it makes it a lot easier. You don’t have to like go to meetings or prepare and make sure you get it all right and be all inclusive. You know, we said ‘we don’t want to be inclusive. We want to be exclusive as a group of friends and we’ll do what we want to’. (Interview 4)

Interviewee 3's claim that he felt excluded by a group of third years was of interest to us, in particular, because it suggested a possible obstacle to the process whereby the student political world is reproduced across time. We believe that second and third year students organize events and groups which recruit first year students, who go on to become second and third year organizers and agitators themselves in a self-perpetuating cycle. If strong ties between third years give rise to closure, however, this may not happen.

In an effort to explore this further we used the E-I Index. This is a test for homophily in network analysis which: 1) compares the internal density of categorically defined groups with the density of ties between them; 2) derives a single score on this basis, reflecting the ratio of 'external' to 'internal' ties; 3) derives an expected score, assuming no bias in relational patterns; and 4) conducts multiple matrix permutations in order to derive a probability for any bias observed. Dividing our activists into two categories, those who had been at Manchester for over two years and those who had not, we found some evidence of homophily. Those who had been at the university for two or more years had an internal density of 0.46, those less than two years 0.28, with ties between the two groups at 0.32; there was a reasonable deviation from the expected score (-0.062 compared to -0.188), and this was statistically significant ($p < 0.05$). Notwithstanding this, however, this is a relatively modest homophilic bias which might simply be explained by the fact that those who have been on campus longer have had more chance to get to know one another. First and second years clearly enjoyed ties with third years.

However, we have already observed that there was a significant core-periphery divide in the campus network, with a core exclusively comprising 'contentious' political actors. It is possible that this is what our interviewee was alluding to. Following up this possibility, we observed that those on campus for more than two years were overrepresented in the core, forming 73 per cent of it, and were 2.5 times more likely to belong to it. This is not absolute closure and must be explained, in some part, as a simple function of time and the opportunities that it affords for forming ties. Nevertheless, it lends some support to our interviewee's claim and underlines the basic point that we have drawn from it: where density becomes higher it may give rise to closure which, in turn, may undermine recruitment, thereby threatening the reproduction of a social world over time.

Conclusions

This article has both specific and more general conclusions. In relation to student politics we have argued that the politicizing effect of higher education is explained, in part, by students leaving the relatively small world of the sixth form college, wherein the critical mass necessary to translate political aspiration into collective action is unlikely to be found, and relocating in a much larger (university) population where a critical mass is more likely. In addition, mindful that critical mass per se is insufficient for collective action and that a mass only gives rise to collective action where its members are networked, we observed that the campus, particularly in virtue of the Students Union, has a centralized focus which allows like-minded actors to find one another and form the bonds that will support collective action; that is to say, to form dense and multiplex networks.

This is an account of how those who desire to become politically active acquire the opportunity to do so. However, we also argued that these actors recruit others from their non-activist networks into activism, swelling the activist network. In this respect two key relational mechanisms are observed to be in play in campus politics; the politically inclined are being drawn together (*homophily/selection*), creating a network, but simultaneously political inclination is spreading by means of inter-personal contact in pre-existing networks (*influence*).

We believe that these ideas apply more generally both on campus and off it. Students have an opportunity to do much besides political action on arrival at university in virtue of their mass and networks. And they do. The size of the student population affords many minority interests the opportunity to hit critical mass and various campus foci, not least the centralized Students Union, allow the members of this mass to find one another and form the networks necessary for whatever forms of collective action inspire them.

The basic logic of this argument holds for other contexts and populations, moreover, both political and non-political. From music scenes, through unusual sports to various 'underground' worlds, collective action depends on the amassing and connecting of 'enough' interested participants (a critical and connected mass) to make it happen, and sociological work seeking to explain such 'happenings' must therefore be able to account for this process of network formation. Collective action, in the final instance, is a matter of a significant number of actors, a collective, coming together to do something (action), and our analyses must focus on these processes.

Finally, however, we have also observed that high network density can become an impediment to the reproduction of a social world. It can make the network appear impenetrable to outsiders, effectively closing the network and inhibiting recruitment.

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Notes

- 1 Networks violate the statistical assumption of case-wise independence but Ucinet provides a 'network friendly' t-test.
- 2 The Politics (debating) Society was second in each case. The Riveters (feminist) group was third for between-ness.
- 3 See Note 1.

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