The relationships between network commitment, its antecedents and network performance

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Abstract

Purpose – The purpose of this paper is to put forward a theoretical model grounded in the literature that identifies a number of antecedent conditions associated with network commitment.

Design/methodology/approach – Based upon empirical data gathered from formal healthcare networks in the UK, findings are presented that suggest different forms of commitment within networks may have opposite effects on network performance.

Findings – This paper argues that commitment may play a significant role specifically associated with determining performance outcomes in networks. In so doing a theoretical model is put forward drawn from the literature to suggest possible antecedent conditions associated with commitment at the inter-organisational level.

Originality/value – To date few studies have been undertaken to examine the antecedents of commitment within networks. More importantly, the recognition of commitment as a multi-dimensional construct within networks has yet to have informed understanding of the role commitment may play at the inter-organisational level.

Keywords Medical care, Networking, United Kingdom

Paper type Research paper

Introduction

Organisations in both the public and private sectors are increasingly entering into network relationships with the recognition that to operate effectively in today’s business climate often requires the knowledge and expertise held by others (Hiscock and Pearson, 1999; Mankin and Cohen, 2003; Nohria and Eccles, 1998). Within healthcare too, participation in networks is seen as a solution to meeting the multi-faceted health and social care needs of communities that are often too complex for any one organisation to solve alone (Brown et al., 1992; Loxley, 1997; Ovretveit, 1993). Within healthcare too, participation in networks is seen as a solution to meeting the multi-faceted health and social care needs of communities that are often too complex for any one organisation to solve alone (Brown et al., 1992; Loxley, 1997; Ovretveit, 1993). However achieving effective performance within network structures may often pose significant challenges for participants, sometimes resulting in either poor performance outcomes or even a breakdown in the collaborative relationship (Himmelman, 1992; Medcof, 1997; Webb, 1991). Specifically within the healthcare field, a major concern has been how to improve collaboration between organisations that are part of both formal and informal healthcare networks in order to achieve specific pre-determined policy outcomes (Scott and Thurston, 2004). A search for appropriate managerial responses to improve collaboration in networks has therefore emerged as a chief concern both within social policy (Lasker et al., 2001; Sullivan et al., 2002), as well as more widely within the private sector (Anderson, 1995; Dyer and Singh, 1998). This has led many writers to suggest that
we need to know far more about the range of potential outcomes associated with collaboration, as well as the associated antecedents and dynamics (Boddy et al., 2000; Hardy et al., 2003). Importantly in this respect, commitment, has been proposed as a chief means through which effective performance in networks can be maximised (Clarke, 2005; Gray, 1999; Huxham, 1996). It therefore follows that if we can gain a greater understanding of how commitment within networks might be fostered, we may be in a better position for guiding management decisions and specific change interventions in this area. This necessitates a focussed effort in theorising relationships between key variables involved in the collaborative process. This paper aims to contribute to efforts towards theory building in this area through positing that one of the chief mechanisms through which effective performance outcomes are achieved in networks is through bringing about a range of antecedent conditions which impact on network performance. These antecedent conditions are suggested to be mediated through the concept of network commitment. Network commitment is suggested here as a co-ordinating mechanism to compensate for the lack of behavioural control processes often found within such organising structures. The article begins by providing a theoretical rational to support this key proposition and then details the findings from a study that sought to test and evaluate a proposed theoretical model.

Commitment within networks
Early work on the notion of commitment within the field of organisational behaviour initially viewed organisational commitment as a uni-dimensional construct that represented the strength of identification or involvement an individual has with the organisation, reflecting an underlying bond or attachment (Mowday et al., 1982). Its importance has been recognised with research implicating organisational commitment as being related to turnover and absenteeism (Mobley, 1982; Mowday et al., 1982) and latterly examining its links with performance (Mathieu and Zajac, 1990; Meyer and Allen, 1997). Considerable progress over the past 25 years however has led to advances in both our understanding and conceptualisation of the commitment construct. In recent years in particular, one of the more critical advances has been the recognition of multiple commitments possessed by individuals within organisations. As early as 1985, Reichers (1985) suggested that individuals are likely to form a range of multiple commitments to different entities. Within the context of healthcare for example, Baruch and Winkelmann-Gleed (2002) demonstrated that managers and other staff within a British healthcare organisation possessed a variety of commitments of varying foci, each with differing antecedents and relationships including organisational, career, workgroup and occupational. Furthermore, McElroy et al. (2001) have also proposed the idea of external organisational commitment, which describes the commitment that an employee of one organisation has for another organisation. In so doing they suggest taking:

The idea of commitment toward a specific constituent and extending it to the forms of commitment beyond the boundary of a particular organisation … commitment to multiple organisational targets is commonplace in many business settings, especially where organisational representatives serve as boundary spanners with other client organisations (p. 238).

Although initially finding particular application with the emergence of relationship marketing (Gundlach et al., 1995; Morgan and Hunt, 1994), the concept of external
forms of commitment is now increasingly being recognised as having an important role to play at the inter-organisational level. Specifically within the context of differing forms of inter-organisational networks (Dyer and Singh, 1998; Kim and Frazier, 1997). In the field of R&D collaboration for example, commitment has been identified as a key success factor upon which collaboration is dependent (Hagedorn et al., 2000; Nummela, 2003; Parker, 2000). Findings from a number of studies are therefore increasingly suggesting a prominent role for commitment as a primary force influencing collaboration (Morgan and Hunt, 1994; Sarkar et al., 1998). To date though, much of the research examining commitment in networks remains embryonic, and for the most part has not been taken up to any significant extent within the organisational science field itself, instead being confined mainly to the business or strategy arenas. A major limitation of much work to date is that we still know very little regarding the particular antecedent conditions that give rise to commitment in networks, nor whether these are common across different network contingencies.

A further limitation of previous research examining the role of commitment at the inter-organisational level is that it has to date, with few exceptions (i.e. Cullen et al., 1995; Halinen, 1997) defined it rather narrowly and tended to treat it as a unidimensional construct (Sarkar et al., 1998). Yet within the commitment literature more widely, commitment is now increasingly accepted as a multi-dimensional construct reflecting three independent and distinguishable mind-sets or psychological states (Meyer and Herscovitch, 2001). In relation to organisational commitment, these have been labelled as affective commitment (indicating the degree of emotional attachment an individual has to the organisation), continuance commitment (reflecting the strength of intention of the individual to remain with the organisation due to either costs of leaving or lack of alternatives on offer) and normative commitment (associated with a felt obligation to remain with the organisation). Commitment is therefore seen as a measure of varying degrees of all three mind-sets (Allen and Meyer, 1990). Previously Meyer et al. (1993) have found evidence for the generalisability of the three-component model of commitment beyond just organisational commitment. More latterly, McElroy et al. (2001) have also suggested that in relation to forms of external organisational commitment, these same sub-dimensions may well also apply. Given these developments, network commitment is perhaps better viewed as a psychological state or force that directs individuals to adopt behaviours consistent with attaining collaborative outcomes, comprising three independent mind-sets of affective, continuance and normative commitment. Each of these three different forms of commitment are characterised very differently. Affective network commitment is based upon an emotional attachment to the network. Continuance commitment is based upon a mind-set of being “locked-in” to the network, due to a lack of alternatives or perceived costs of leaving. While normative commitment is presumed to be based upon a felt obligation to participate in the network.

The relationship between network commitment and performance

P1. Network commitment will be positively related to network performance.

Although to date research on the commitment-performance relationship at the organisational level remains equivocal (Mowday, 1999; Putterhill and Rohrer, 1995), it is also postulated here that there are behavioural/performance implications arising
from network commitment. Specifically, that network commitment will be related to network performance (i.e. positive collaborative outcomes associated with a particular collaborative relationship). The rationale for this is fairly straightforward. Where network members develop commitment to the network they are more likely to exert greater efforts to work towards the goals of the network and exert greater energies to solve particular relationship problems where they arise. Commitment should therefore support increased co-operative behaviours among network members leading to a greater likelihood of improved performance outcomes. From an economics perspective, the time and costs associated with recurrent disputes, posturing and renegotiations that take time and energy away from the real business of the network are likely to be significantly reduced when commitment within the network is high (Milgrom and Roberts, 1992). Supporting this relationship has been a number of theoretical and empirical studies that suggest that commitment may well be a key factor in generating far better outcomes at the inter-organisational level (Badaracco, 1991; Ohmae, 1989; Sarkar et al., 1998). It should therefore be expected that a positive relationship should be found between network commitment and network performance.

Theorising the antecedents of network commitment

P2. A belief that (1) network members are dependent upon each other in order to achieve their own goals (mutual interdependence) and (2) more can be accrued for individual network members by participating in the network rather than acting alone (mutual gain) will be positive associated with network commitment.

McElroy et al. (2001) have previously suggested that Emerson’s (1962) notion of power-dependence offers a basis for understanding the development of different forms of external commitment, where dependence is affected by the extent to which a relationship is characterised by factors such as uncertainty, substitutability and centrality. Here characteristics associated with the commitment foci that increase an individual’s dependence on it are likely to enhance the level of commitment felt towards that entity. This is achieved through their capacity to diminish the likelihood of substitutability and increase centrality. Put more simply, commitment is likely to be increased when there are factors that make replacing the relationship with another partnership a less desirable prospect or where the attraction between partners can be increased. This being the case, mutual interdependencies between network members and a belief that benefits will accrue to all parties should therefore serve as key antecedents of commitment within networks, and there is some support for this from previous research (Dwyer et al., 1987; Holm et al., 1999; Kumar et al., 1995; Sarkar et al., 1998). Although sharing some similarity, these conditions are distinguished in that mutual interdependence refers to the perceived need for the resources that a partner may bring to the relationship whereas mutual gain refers to the perceived business outcomes as a result of the relationship.

P3. Both (3) shared values and (4) goal congruence within the network will be positively associated with network commitment.

Emerson’s (1962) theory of power-dependence would suggest then that the more favourably the entity (or partnership) is perceived by the individual, the stronger that
commitment is likely to be as a result of increasing the centrality of that dependence to the network. It would seem reasonable to suppose that factors likely to strengthen this favourable perception should also be associated with the development of network commitment (Lawler and Yoon, 1996). Elsewhere these features have also been referred to as increasing the compatibility between network members that results in enhanced commitment (Madhok, 1995; Sarkar et al., 1998). When network members share similar values for example (Dwyer et al., 1987; Heide and John, 1998; Ring and Van de Ven, 1992) and there is congruence between the network member’s goals and those of the network (Frazier et al., 1988; Lewis, 1990; Root, 1988), the level of uncertainty between network members is likely to be diminished. According to Pennings (1970), work related values can be defined as constellations of attitudes which are used to evaluate the work environment whereas a goal is what is the object or aim of an action (Locke and Latham, 1990). In this sense shared values can be thought of as distinct from shared goals or goal congruence.

**P4.** Confidence in network organisations (5) will be positively associated with network commitment.

A number of authors have also stressed the importance of confidence in the competence of network members as a key factor in facilitating collaboration. Das and Teng (1998) for example, have argued that low levels of confidence amongst network members promotes a lack of co-operation and encourages partners to behave opportunistically or act out of self-interest. In developing this concept, they have suggested that both trust and control are inter-related constructs underpinning confidence in partner co-operation, and that without such confidence networks suffer deleterious effects. The concept of possessing confidence in partners within a network would therefore seem to be associated with increasing the strength of attachment to the network, and specifically commitment (Nummela, 2003).

**P5.** Involvement in decision-making (6), effective conflict resolution mechanisms (7) within the network and role clarity (8) will be positively associated with network commitment.

Based on the work of Lawler and Yoon (1996) and their theory of relational cohesion in exchange relationships, equal power is likely to increase the propensity of mutual exchange in a network which in turn should lead to positive emotions that result in enhancing commitment. Elsewhere both the literature on the antecedents of organisational commitment (Mathieu and Zajac, 1990; Meyer and Allen, 1988) as well as that on inter-organisational collaboration provides support for the importance of shared power and involvement in decision-making as key determinants of commitment (Bucklin and Sengupta, 1993; Huxham and Vangen, 2000a). At the inter-organisational level, reciprocal commitment between network members has also been suggested as arising from mitigating conflict (Yan and Gray, 1994), and again this has its basis in the literature relating to the balance of power and its effect on conflict within exchange-based relationships (Emerson, 1962). It would therefore seem reasonable to propose that effective conflict resolution is a necessary activity that facilitates the emergence of network commitment (Sayeed, 2001). Roles clearly defined between members participating in a network has also been suggested as contributing to commitment through diminishing potential conflict and reducing uncertainty and
ambiguity, as well as clarifying mutual expectations (Sarkar et al., 1998). In so doing role clarity should therefore diminish uncertainty and increase centrality resulting in greater commitment.

P6. Effective performance feedback (9) within the network will be positively associated with network commitment.

Considerable effort is required to sustain a network over time, which is at risk of simply grinding down without a capacity for ongoing monitoring and review to assist regeneration (Sink, 1991; Ring and Van de Ven, 1994). Sink (1991) for example, suggests that in order to avoid atrophy or death, networks must establish “evaluative capacity” whereby evaluative processes underpin remedial strategies for the ongoing sustenance of inter-organisational relationships. Effective performance feedback mechanisms should therefore generate processual and outcome data, which can then be feedback to stakeholders regarding task achievement and the extent to which partnership objectives have been achieved. This gives rise to the final antecedent condition that is posited here to affect network commitment:

Methodology
Sampling and respondents
In order to test the above ten propositions, data was collected from all 61 statutory drug misuse networks in England, responsible for formulating and implementing regional drug misuse prevention and treatment plans across the country. Each of these networks consists of senior representatives (usually the director, CEO or equivalent) from key community organisations involved in the delivery of drug misuse or prevention services (such as the health service, social services, police, probation, and a range of community drug misuse services). One of these representatives (normally from the statutory sector) also takes on the role of chairperson of the network. In addition, each network possesses a co-ordinator who works closely with the chairperson and other network members to facilitate joint working between organisations in the network in order to meet set performance targets. A questionnaire to collect data on commitment, antecedent conditions, and collaborative outcomes (network performance) was sent by post to 122 members (chairs and co-ordinators from each network) of the 61 healthcare networks and a total of 99 questionnaires were completed and returned, a response rate of 81 percent. A total of 57 (56 per cent) of respondents were chairpersons of these networks, while 42 (44 per cent) were co-ordinators. Females comprised 54 per cent of respondents, and the average age was 39. Participation in the study was voluntary, and an accompanying letter explained the aims of the study, contact details for further information and guaranteed respondent anonymity. A pilot study of the questionnaire amongst a group of 22 drug service professionals not taking part in the research did not indicate any problems with either the content, length or instructions for completion.

In previous studies examining measures of inter-organisational commitment, single measures of commitment often have been obtained from an individual member representing a particular network or dyad relationship (Daniel et al., 2002; Sarkar et al., 1998; Walter and Ritter, 2003). Sarkar et al. (1998) for example, utilised self-administered questionnaires to collect data from 129 executives representing construction projects that involved collaborative ventures with foreign partners. More
recently, Daniel et al. (2002) also adopted a similar approach in collecting data from representatives of 58 research centres who had responsibility for maintaining collaborative networks. Typically then in previous studies, one senior network representative has often only provided a measure of network commitment. In this study however measures of network commitment were obtained from both chairpersons and co-ordinators from each of the networks. The chairpersons and co-ordinators from each network were considered to possess a more in-depth understanding of the relationships amongst network members as well as antecedent conditions since their role required them to liaise on a more regular basis with all organisations in the network. Both these key individuals have responsibility for trying to bring about the type of conditions conducive to collaboration and are believed to possess a more strategic view concerning network functioning and “health” (Drug Strategy Directorate, 2004). Importantly however a number of writers have suggested that it is the commitment of leadership roles such as these that are of pivotal significance in determining collaborative outcomes (Huxham and Vangen, 2000b; Mulroy and Shay, 1998; Purdue and Razzique, 1999; Scott and Thurston, 2004).

A total of 42 dyads consisting of chairpersons and co-ordinators from the same network were obtained. In order to determine the extent of agreement between scores on commitment and antecedents correlation scores were undertaken for all antecedent variables, measures of antecedent and continuance commitment and network performance scores. The range of \( r \) values obtained for each dyad is shown for each variable in Table I. These show a high level of correlation on all antecedent conditions apart from confidence in network organisations (\( r \) ranges from 0.58 to 0.68 for all dyads) and involvement in decision making (\( r \) ranges from 0.57 to 0.64 for all dyads) which suggests that items on these particular variables are somewhat less reliable measures of these variables compared to measures of the other variables obtained. However there was a good level of agreement on scores obtained on all other variables suggesting some consistency in beliefs regarding antecedent conditions and

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson’s ( r ) range</th>
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<tr>
<td><strong>Antecedents</strong></td>
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<tr>
<td>Mutual interdependence</td>
<td>0.69-0.80</td>
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<td>Mutual gain</td>
<td>0.67-0.82</td>
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<td>Shared values</td>
<td>0.60-0.73</td>
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<td>Goal congruence</td>
<td>0.72-0.76</td>
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<tr>
<td>Confidence in network organisations</td>
<td>0.58-0.62</td>
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<tr>
<td>Conflict resolution</td>
<td>0.72-0.88</td>
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<td>Role clarity</td>
<td>0.74-0.78</td>
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<tr>
<td>Involvement in decision making</td>
<td>0.57-0.64</td>
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<td>Effective performance feedback</td>
<td>0.68-0.76</td>
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<td><strong>Network commitment</strong></td>
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<tr>
<td>Affective commitment</td>
<td>0.69-0.80</td>
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<tr>
<td>Continuance commitment</td>
<td>0.68-0.78</td>
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<tr>
<td><strong>Network performance</strong></td>
<td>0.76-0.92</td>
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</tbody>
</table>

**Note:** \( n = 42 \) dyads

Table I. Range (min, max) of correlations between chairperson and coordinator scores from same network on antecedents, commitment and performance measures.
commitment in the network between these two individuals. On this basis one might reasonably accept these measures as significant indicators of network commitment, albeit partial measures (Nummela, 2003).

Development of measures

Antecedent conditions. Nine scales containing three items each, posited as the antecedent conditions of network commitment were generated based on previous measures used in the literature, and in two instances devised by the author (appendix). Items were amended in a number of instances to reflect the network as the focus however without altering the underlying meaning. Items were randomly distributed in the questionnaire and respondents asked to indicate on a seven-point likert scale (1 = strongly disagree, 7 = strongly agree) the extent to which the posited antecedent conditions were present in their network. Items for the mutual interdependence (alpha 0.65), and goal congruence (0.64) scales were adapted from those used by Sarkar et al. (1998). The scale for shared values was based on that previously used by Caldwell et al. (1990) (alpha 0.68). Items for the role clarity scale were based on those previously used by Rizzo et al. (1970) (alpha 0.68) and those for measuring Involvement in decision-making were adapted from the scale used by Morris and Koch (1979) (alpha 0.82); items for the performance feedback scale were derived from those developed by himmelman (1992) (alpha 0.80). The effective conflict resolution scale was derived from items from Rahim’s (1983) measure of organisational conflict. The two remaining scales, mutual gain (alpha 0.79) and confidence in network members (alpha 0.78), were developed by the author. Alpha values of 0.70 are considered acceptable with 0.60 acceptable for new scales (Churchill, 1979). Reliability scores for both mutual interdependence and goal congruence were considered satisfactory if somewhat modest compared to the other scales and this may have been due to changes in the wording of the scales in adapting to the study.

Network commitment

Scale development and construction. Measures of affective, continuance and normative commitment were initially included in the study. Items for inclusion in the three commitment scales were based on items generated from a focus group held with 22 healthcare professionals who had experience of working in these networks (although did not take any further part in the study), and items initially derived from a previous measure of organisational commitment (Allen and Meyer, 1990). This resulted in a pool of 17 items. The order of the items on the questionnaire was random and four questions (2, 3, 11 and 15) were reverse scored (Table II). All 17-items comprising these three scales were subjected to a factor analysis (principal factor analysis), extracted and rotated to a varimax criterion. Six factors were subsequently extracted with eigen-values greater than 1, although an examination of the scree point suggested that five factors were the most significant, accounting for 17.5, 13.5, 11.9, 8.3 and 7.3 per cent of the total variance, respectively (Table II). This was compared with the results of a forced factor analysis where the items in the three scales were forced to rotate to threee factors corresponding with the three scales. This yielded three factors with eigen-values of 2.97, 2.30 and 2.02 accounting for 17.5, 13.5 and 11.9 per cent of the variance, respectively. A comparison was made between these two results to inform judgements concerning which factors to retain as scale items. Specifically, items for
each factor were retained (1) if loadings were greater than 0.40, (2) did not load onto more than one factor, and (3) if items were found to be present in the same factor in both factor analyses. This resulted in five items being retained for factor 1 (1. Collaborating with other organisations in this network has a great deal of meaning to me. 2. I enjoy discussing this network with people outside it. 3. Not participating in this network would make a difference to the success of the network. 4. Participating in this network makes a difference to the local community. 5. I believe that collaboration between organisations in the network will improve outcomes for service users).
corresponding to the affective commitment scale. Four items were retained for factor 2, corresponding to the scale for continuance commitment:

1. It would be very difficult to leave this network even if I wanted to.
2. It would not be too costly for me to leave this network now.
3. I feel I have too few options to consider leaving this network.
4. One of the few serious consequences of leaving this network would be scarcity of available alternatives.

Items pertaining to the normative commitment scale did not meet the above criteria and as a result the scale was dropped from any further analyses in the study. The two remaining scales had reliability scores (cronbach’s alpha) of 0.72 (affective commitment) and 0.71 (continuance commitment).

**Network performance**

A scale containing three items relating to specific Health Department performance indicators for these networks were used to measure network performance (appendix). From 2003, these healthcare networks are required to audit and submit data to the Department of Health on the extent to which they achieve government set performance targets. Annual monitoring data collected by the network requires that the network indicate the extent to which they have achieved these performance targets. Respondents were therefore asked to indicate on a nine-point likert scale the extent to which each of the three outcomes had been achieved ranging from 1 = not at all to 9 = comprehensively, based on their annual monitoring data (which was not publicly available). Although performance outcomes are therefore ostensibly self-report measures, they are informed by the objective performance data previously collected by the network. The particularly high levels of agreement obtained on network performance scores between dyads in Table I would appear to lend some support to the extent to which these scores were based upon objective annual performance data that was available to these key members within the network.

**Results**

There was no statistical difference between network chairpersons and co-ordinators on either forms of commitment, antecedents or on network performance scores. Table III presents the means, standard deviations and intercorrelations of the variables in the study. The results support the view that both affective and continuance commitment are independent dimensions of the overall network commitment construct. As expected, both these forms of commitment were not significantly correlated and are differentially related to the posited antecedent variables. Regression analyses were used to investigate the relationships between the variables, using the two forms of commitment and network performance as dependent variables at the first, second and third set of analyses respectively. The first set of analyses examined relationships between each of the antecedent conditions and affective commitment. The second set of analyses examined relationships between each of the antecedent conditions and continuance commitment. The final set of analyses examined the influence of all antecedent conditions and both forms of commitment on network performance. The results in
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<th>M</th>
<th>SD</th>
<th>Alpha</th>
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<tbody>
<tr>
<td>1. Confidence</td>
<td>15.04</td>
<td>3.13</td>
<td>0.78</td>
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<tr>
<td>2. Conflict resolution</td>
<td>14.77</td>
<td>3.07</td>
<td>0.77</td>
<td>0.67**</td>
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<td>3. Feedback</td>
<td>13.95</td>
<td>3.63</td>
<td>0.80</td>
<td>0.56**</td>
<td>0.41**</td>
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<td>4. Mutual gain</td>
<td>16.61</td>
<td>3.29</td>
<td>0.79</td>
<td>0.56**</td>
<td>0.46**</td>
<td>0.28*</td>
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<td>5. Goal congruence</td>
<td>15.05</td>
<td>2.82</td>
<td>0.65</td>
<td>0.72**</td>
<td>0.64**</td>
<td>0.44**</td>
<td>0.42**</td>
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<td>6. Interdependence</td>
<td>15.82</td>
<td>3.19</td>
<td>0.58</td>
<td>0.26*</td>
<td>0.20</td>
<td>0.41**</td>
<td>0.56**</td>
<td>0.27*</td>
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<tr>
<td>7. Involvement</td>
<td>16.99</td>
<td>2.66</td>
<td>0.82</td>
<td>0.26*</td>
<td>0.51**</td>
<td>0.37**</td>
<td>0.65**</td>
<td>0.64**</td>
<td>0.38**</td>
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<tr>
<td>8. Role clarity</td>
<td>15.54</td>
<td>2.79</td>
<td>0.59</td>
<td>0.56**</td>
<td>0.40**</td>
<td>0.50**</td>
<td>0.38**</td>
<td>0.59**</td>
<td>0.22*</td>
<td>0.51**</td>
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<td>9. Shared values</td>
<td>14.19</td>
<td>3.26</td>
<td>0.70</td>
<td>0.80**</td>
<td>0.69**</td>
<td>0.37**</td>
<td>0.45**</td>
<td>0.70**</td>
<td>0.16</td>
<td>0.52**</td>
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<td>10. Affective</td>
<td>33.21</td>
<td>4.41</td>
<td>0.71</td>
<td>0.47**</td>
<td>0.48**</td>
<td>0.25*</td>
<td>0.77**</td>
<td>0.44**</td>
<td>0.54**</td>
<td>0.58**</td>
<td>0.47**</td>
<td>0.34**</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Continuance</td>
<td>22.32</td>
<td>5.47</td>
<td>0.68</td>
<td>–</td>
<td>0.02</td>
<td>–</td>
<td>0.04</td>
<td>0.08</td>
<td>0.16</td>
<td>0.05</td>
<td>0.04</td>
<td>0.10</td>
<td>0.04</td>
<td>-0.03</td>
<td>0.05</td>
</tr>
<tr>
<td>12. Network outcomes</td>
<td>18.67</td>
<td>4.34</td>
<td>–</td>
<td>0.50**</td>
<td>0.46**</td>
<td>0.51**</td>
<td>0.21</td>
<td>0.61**</td>
<td>0.17</td>
<td>0.32**</td>
<td>0.49**</td>
<td>0.42**</td>
<td>0.36**</td>
<td>0.21</td>
<td>–</td>
</tr>
</tbody>
</table>

**Notes:** *p < 0.05, **p < 0.01
Table IV show that when regressed against affective commitment, four of the eight posited antecedent conditions have statistically significant positive regression coefficients; mutual interdependence, mutual gain, effective conflict resolution mechanisms and role clarity, accounting for 69 percent of the variance in this dimension of commitment. However the results show that none of the antecedent variables included in the study were significantly related to continuance commitment. Propositions 1, 2, 6 and 7 were therefore supported in that these four of the nine posited antecedent conditions were positively associated with affective commitment.

The final set of analyses examined the relationship between both the posited antecedent conditions and the two dimensions of network commitment on network performance. In the first regression analysis all nine antecedent conditions were entered in the first step to determine if they were related to network performance outcomes. The results in Table IV show that both effective feedback and goal congruence were significantly related to network performance outcomes, together accounting for 48 per cent of the variance in this construct. When both affective and continuance commitment were entered in the second step, the value of $R^2$ changed indicating a significant effect due to both forms of commitment. An examination of the beta weights demonstrated however that affective commitment was significantly positively related to network performance while there was a smaller, negative relationship with continuance commitment. Thus, when statistically controlling for the posited antecedents, both affective and continuance forms of commitment have statistically significant effects on network performance. Proposition ten was therefore supported in that affective commitment was positively related to network performance. The finding that continuance commitment was negatively related to network performance suggests that the relationship between commitment and performance within networks is certainly not straightforward.

<table>
<thead>
<tr>
<th>Variable</th>
<th>(1) Affective</th>
<th>(2) Continuance</th>
<th>(3) Network performance At step</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Shared values</td>
<td>-0.20</td>
<td>-0.08</td>
<td>-0.13</td>
<td>-0.09</td>
</tr>
<tr>
<td>1. Mutual interdependence</td>
<td>0.20*</td>
<td>-0.12</td>
<td>-0.05</td>
<td>-0.13</td>
</tr>
<tr>
<td>1. Role clarity</td>
<td>0.24*</td>
<td>-0.13</td>
<td>0.12</td>
<td>0.03</td>
</tr>
<tr>
<td>1. Feedback</td>
<td>-0.17</td>
<td>-0.01</td>
<td>0.27*</td>
<td>0.31*</td>
</tr>
<tr>
<td>1. Involvement</td>
<td>0.04</td>
<td>0.06</td>
<td>-0.19</td>
<td>-0.19</td>
</tr>
<tr>
<td>1. Lack of conflict</td>
<td>0.25*</td>
<td>-0.15</td>
<td>0.09</td>
<td>-0.01</td>
</tr>
<tr>
<td>1. Mutual gain</td>
<td>0.54**</td>
<td>0.33</td>
<td>-0.01</td>
<td>-0.11</td>
</tr>
<tr>
<td>1. Goal congruence</td>
<td>0.06</td>
<td>0.24</td>
<td>0.51**</td>
<td>0.54**</td>
</tr>
<tr>
<td>1. Confidence in other orgs</td>
<td>0.01</td>
<td>-0.14</td>
<td>0.11</td>
<td>0.08</td>
</tr>
<tr>
<td>2. Affective</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Continuance</td>
<td></td>
<td></td>
<td></td>
<td>-0.19*</td>
</tr>
<tr>
<td>Multiple $R$</td>
<td>0.84</td>
<td>0.29</td>
<td>0.69</td>
<td>0.74</td>
</tr>
<tr>
<td>$R$ square</td>
<td>0.69</td>
<td>0.09</td>
<td>0.48</td>
<td>0.54</td>
</tr>
</tbody>
</table>

Table IV.
Hierarchical regression results

Notes: $^*$p < 0.05, $^{**}$p < 0.01
Discussion

The significance of network commitment for network performance

The purpose of this paper was to posit and test a theoretical model grounded in the literature, to explain a number of possible antecedent network conditions associated with commitment at the inter-organisational level, or network commitment. In so doing it was suggested that one of the key mechanisms through which improved performance in networks can be brought about, is indirectly through increasing the commitment amongst network partners. In this respect a number of key findings have emerged from the study demonstrating some degree of support for the construct of network commitment as a mediating variable influencing network performance outcomes, thereby supporting proposition one. However the two different dimensions of affective and continuance commitment, although both statistically significant, were found to have opposite relationships with network performance, positive and negative respectively. The results suggest then, that the link between commitment and network performance may vary as a function of the strength of these two dimensions of network commitment. Previously in the organisational commitment literature, Meyer et al. (1989) found that supervisory ratings of the overall job performance and the promotability of their employees correlated positively with those employees’ affective commitment scores, and negatively with their continuance commitment scores. Mayer and Schoorman (1992) also found that commitment leading to participation was associated with continuance commitment whereas by contrast, performance is more strongly related to value (affective) commitment. Similarly of note here too, continuance network commitment was also found to be negatively and to a lesser degree related to network performance. Specifically as regards networks, it may well be that a continuance form of commitment has a role in influencing network partners to continue to participate within a network, and as such has an important role to play overall in regards enhancing collaboration. However the finding here that it has a negative relationship with network performance has significant implications. Firstly, it draws attention to important considerations concerning the variegated nature of networks themselves and the extent to which different forms of commitment may have more salient effects under different contingencies. Certainly the finding here that none of the antecedent conditions tested was associated with continuance commitment lends support to the independent nature of these two commitment dimensions. Of major interest however, it may well also be that these different forms of commitment are associated with different types of collaborative outcomes. Such that for example, continuance commitment may possibly be more closely associated with alternative collaborative outcomes such as political outcomes for example (Clarke, 2005; Hardy et al., 2003). Secondly, these findings may also shed some light on some of the mixed results obtained in previous studies examining commitment at the inter-organisational level, which have utilised uni-dimensional measures of the construct. Previously for example, Sarkar et al. (1998) found a negative relationship between the construct of relational bonding and termination costs, whereas Morgan and Hunt (1994) found a positive relationship. Termination costs are more likely to be associated with continuance commitment. Differences in results may well therefore reflect the failure to satisfactorily operationalise the multidimensional nature of commitment at the inter-organisational level. Furthermore these findings provide some support for the benefits of establishing conditions that generate an affective form of commitment...
within networks as a means through which network performance might be increased. Importantly these findings appear to provide credence to McElroy et al.’s (2001) assertions for recognising the distinct dimensions associated with the commitment construct beyond simply the organisational level.

**Antecedent conditions of network commitment**

The findings of this study are also of interest in providing empirical support for some of the antecedent conditions of network commitment posited (demonstrated by solid lines of Figure 1). Importantly the network conditions, mutual interdependence, mutual gain, effective conflict resolution, and role clarity were all found to have statistically significant positive relationships with affective commitment, providing some support for stated propositions 2 and 5. The first three of these antecedent conditions support previous research examining the antecedents of commitment at the inter-organisational level (Dwyer et al., 1987; Yan and Gray, 1994; Kumar et al., 1995; Holm et al., 1999). Mechanisms for conflict resolution in particular may actually strengthen network relationships and lead to both greater commitment as well as trust (Gundlach et al., 1995; Weitz and Jap, 1995). Previously however mixed results have been found for the antecedent, role clarity (Lusch and Brown, 1996; Sarkar et al., 1998; Young and Wilkinson, 1989). This may well have been due to the different ways in which the commitment construct has been operationalised in these previous studies.

**Figure 1.**

The relationship between network commitment, its antecedents and network performance

Key:

- Broken lines: Posited relationships
- Intact Lines: Demonstrated relationships
This may also explain the failure to find any significant relationships with the antecedent conditions of shared values, goal congruence and effective performance feedback here, whilst positive relationships have previously been found in a study by Sarkar et al. (1998). Yet it should be noted that all the antecedent conditions posited here were found to be significantly correlated with affective commitment (Table III). This may suggest that some of the antecedent conditions tested may well influence affective commitment through their effects on a further intervening variable. Most notably trust. A previous study by Zeldin and Jonnson (2000) for example, also failed to demonstrate a relationship between commitment and shared values at the inter-organisational level, yet they did find a significant positive relationship between shared values and trust. Supporting much of the literature in the area, these authors also found that trust was positively associated with commitment at the inter-organisational level (De Ruyter et al., 2001; Kwon and Suh, 2005; Morgan and Hunt, 1994; Wong and Sohal, 2002). The results here also failed to demonstrate a relationship between confidence in network members and commitment. Confidence however has figured prominently in the way in which trust has often been conceptualised (Moorman et al., 1993; Rotter, 1967). In some instances then despite the significant positive correlations found between these posited antecedent conditions and commitment, they may well influence affective commitment although indirectly through their capacity for generating trust.

Theoretically these three posited antecedent conditions variables for which no significant relationships were found were suggested to enhance commitment through their capacity to increase compatibility between network partners and reduce levels of uncertainty. Yet it can also be argued that all three of these conditions can be categorised typically as control mechanisms, with the latter two processes (goal congruence and performance feedback) classified as types of formal control while shared values an example of social control (Eisenhardt, 1985; Das and Teng, 1998). Elsewhere Cullen et al. (1995) in their study examining commitment in joint ventures, found that formal control was not related to commitment. The results here then would seem to indicate that any relationship between these latter three specific conditions and commitment is not as straightforward as perhaps suggested by the theoretical considerations discussed earlier in this paper. It may also be the case that other factors may well determine their salience in fostering network commitment, not least the type of network under consideration (Das and Teng, 1998) and importantly the particular dimension of network commitment being examined. In relation to shared values for example, it may well be that this is more closely associated with the dimension of normative network commitment rather than affective commitment as was posited here. Previously OReilly and Chatman (1986) have found a positive relationship between shared values and a measure of organisational commitment that corresponded closely to a normative dimension. At the inter-organisational level too then, shared values may be more closely associated with a normative form of network commitment. Problems encountered with establishing a reliable measure of normative commitment in this study however meant that this was not able to be tested here. It does however underscore the need for future research that examines the differing dimensions of commitment and their potential antecedents at the inter-organisational level.

Nevertheless the results do support a clear role for formal control mechanisms within networks (goal congruence and performance feedback) as having a direct
influence on network performance. This would appear to support much of the literature relating to supporting collaboration between organisations where a number of authors have stressed interventions that seek to increase compatibility between collaborating partners’ goals and institute evaluative processes that attempt to provide data on how the network for example may be performing in order to guide ameliorative action (Clarke, 2005; Cummings and Worley, 1997; Gray, 1999). The failure to find a positive relationship between the network condition, involvement and decision making and network commitment was surprising given the theoretical rational outlined. This could suggest that the items contained in the measure used may not have sufficiently tapped this variable appropriately. The items relating to Involvement in decision-making used here may simply have captured participation without any real sense of power sharing (Conger and Kanungo, 1988). Yet it may be this latter aspect that is the far more significant factor in relation to fostering commitment (Emerson, 1962). Similarly the measurement of confidence in network members may have also been far too vague to capture the specific confidence locus potentially associated with affective commitment. Das and Teng (1998) for example suggest that it is specifically confidence in the co-operation of network members that fosters network relational attributes rather than merely confidence in network organisations per se. Future research should explore the extent to which measures that better cover the domain of interest associated with these antecedent conditions produce similar or differing results.

Finally a number of limitations associated with the study should be recognised in considering the findings obtained. Firstly, the selection of both the chairperson and co-ordinator from each of the networks to provide data on the antecedent conditions and commitment measures may have introduced some bias into the measures collected. These individuals were selected due to their in-depth knowledge of the nature of the network and network conditions and because arguably their commitment is deemed to be the most significant in determining network performance outcomes. However these particular antecedent conditions may well have very different degrees of significance for performing these roles compared to other members of the network. It therefore cannot be discounted that the results obtained may well have been due to network data being collected from only these two key members of the network. Previously Nummela (2003) has suggested that as far as possible, measures of commitment at the inter-organisational level should be obtained from all network members to increase the validity of the measures obtained. In this study there was generally a high level of agreement between the scores obtained on variables for chairpersons and co-ordinators from the same network, suggesting some degree of support for the consistency obtained in the measures used. Nonetheless far more research needs to be undertaken to determine the extent to which data from significant members of networks, particularly relating to commitment, genuinely reflects that of network members more widely. Secondly, the cross-sectional nature of the research only allows us to identify associations, so longitudinal studies are necessary in order to gain more concrete data regarding the direction of any significant relationships found. Such studies would also provide greater insights into the differing developmental trajectories of the antecedent conditions identified here and how these then impact on the development of network commitment. Indeed we need to understand far more on how these differing antecedent conditions interact with one another and whether there is a sequential element to their effectiveness. The nature of this network may well also constrain the extent to which
these findings are necessarily characteristic of other networks more widely. Organisations and agencies operating within the public sector and within healthcare in particular are subject to a range of particular legal and political regulatory frameworks that may well influence both the significance of particular antecedent conditions, their influence on differing types of commitment as well as the potential impacts of these types of commitment. Despite these limitations this would seem to be the first study to appear in the literature that has sought to examine relationships between network conditions and different dimensions of the commitment construct the results of which has highlighted the differing roles that types of commitment may play within networks. As our understanding of the differing outcomes of collaboration associated with networks increases, this should enable us to consider more carefully how different forms of commitment might be implicated in producing differing collaborative outcomes. This knowledge should then lead to us developing far better management interventions in order to improve both network relationships and the outcomes desired by both network members and where relevant those of policy makers.

Conclusions
This paper has argued that commitment may play a significant role specifically associated with determining performance outcomes in networks. In so doing a theoretical model was put forward drawn from the literature to suggest possible antecedent conditions associated with commitment at the inter-organisational level. Importantly a number of these posited relationships were found to be significantly associated with affective commitment. However affective and continuance commitment at the inter-organisational level were found respectively to have a positive and negative relationship with network performance. The findings suggest then that we need to discover far more how different forms of commitment influence collaborative outcomes associated with different forms of networks. Importantly in this respect the nature of different networks may well influence the salience of particular variables in terms of the genesis of commitment at the inter-organisational level. Further research is therefore required to fully identify those different antecedent conditions that may foster commitment at the inter-organisational level. Of most significance despite the study’s limitations, the findings provide an initial indication that utilising differing dimensions associated with the commitment construct may be an important step forward if we are to begin to build a comprehensive theory to underpin the commitment construct and its impact at the inter-organisational level. Further research should therefore seek to confirm the significance of those network conditions found to be associated with affective commitment here, as well as identify others that are associated with other dimensions of network commitment. This should then assist network facilitators and managers at the operational level in considering where energies should be directed for developing key antecedent conditions in order to improve network performance.

References


Himmelman, A. (1992), *Communities Working Collaboratively for a Change*, The Himmelman Consulting Group, Minneapolis, MN.


Appendix

Shared values
5. There is compatibility between the values of the network and the values of my organisation.
24. If the values of this network and my organisation were different, my organisation would not be part of this network.
25. The different organisational cultures or values of network members often get in the way of the network getting things done ®.

Goal congruence
14. The goals of my employing organisation and the network are similar.
21. There is a clear vision of what the network is hoping to achieve.
28. There are conflicting ideas about what the network should be trying to achieve ®.

Effective conflict resolution
15. Organisations in the network work hard to try to resolve problems or difficulties that arise.
39. Disagreements or disputes often characterise the relations organisations in this network.
27. There is compatibility between how network members consider difficulties should be addressed.

Involvement
6. I play a large part in making decisions in this network.
30. I am able to influence the agenda in this network.
26. Network members are receptive to my suggestions about how things could be done.

Confidence
4. I have confidence in the work of other organisations in the network.
22. I consider members from other organisations participating in this network to be competent.
37. I am unsure of the motives of other members participating in the network.

**Role clarity**
1. I am clear about my role in this network.
18. There is often confusion amongst network members about who is responsible for doing what.
12. I am aware of the roles and responsibilities of each of the individual organisations involved in the network.

**Mutual interdependence**
10. My organisation could achieve its objectives without the involvement of the other organisations in this network.
13. My organisation is dependent on the other organisations in this network in order to achieve its goals?
31. Participating in this network is essential for improving my own organisation’s services.

**Mutual gain**
Participating in this network brings benefits to all the organisations involved.
9. My organisation gains more from being part of this network than if it were it not.
33. The benefits of participating in this network outweigh the costs involved.

**Feedback**
11. I regularly receive feedback on how well the network is achieving its goals.
40. Information is readily available on how well the network is actually functioning.
32. The network has developed systems and procedures for monitoring its performance.

**Network performance outcomes**
1. To support the implementation of drug education in the context of personal, social and health education in all schools, the youth service, further education, the community and with parents based on evidence of good practice.
2. To ensure that prevention/education plans targeting young people address local problems in a holistic way involving schools, parents, the youth service, further education, the community and statutory agencies through targeted interventions.
3. To have established a maximum waiting time for admission into a drug treatment service and to be monitoring agencies’ performance.

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