Team learning and service improvements in health care

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Abstract

Purpose – This study aims to propose a typology of team learning processes, based on a study of teams of health care therapists across England who were engaged in improving their services.

Design/methodology/approach – Information was gathered from 35 teams of health care therapists, through analysis of reports produced by the teams and by interviews with team leaders. The actions taken to achieve service improvements were analysed through a lens of team learning.

Findings – Team learning is an appropriate frame of reference for analysing actions designed to bring about change and improvement. Seven distinct team learning activities are defined.

Research limitations/implications – The implication of the study is that it is useful to apply a theoretical framework of organisational learning to service improvements undertaken by work teams. The study indicates learning processes that were important elements in these changes. The study limitation was that information was gathered mainly from the leaders of each team; other team members may have contributed different perceptions.

Practical implications – Leaders of organisations and of teams should adopt team learning as a useful perspective for improving services and should consider how to encourage and support team learning.

Originality/value – This is one of a small number of empirical studies of team learning processes in work organisations.

Keywords Change, Health care, Team learning, Service improvement

Paper type Research paper

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Introduction

The challenges facing health care organisations in developed economies include demographic changes, medical and technological advances, changing expectations of consumers, and increasing pressure to reduce costs (Elg *et al.,* 2011: Ham, 2009; Mintzberg, 2011; Porter and Lee, 2013). One of the responses to these challenges is to develop clinician-led improvements to services, which will meet patient needs more effectively and efficiently. It is likely to be increasingly important for organisations and individual professionals to understand the dynamics of such clinician-led improvements, in order to encourage their spread.

This paper is based on an analysis of the activities of 35 clinical teams that achieved dramatic improvements to their services in National Health Service organisations in England.

The aim of the research was to understand the factors and processes that enabled the teams to achieve these improvements. The original conceptual frameworks for analysing how the changes were achieved were expected to be those of quality improvement and change leadership. However, a significant element of the changes concerned team learning, and it became apparent that viewing the changes through a lens of team learning could provide an enhanced understanding of factors that led to the success of the projects.

Learning within teams has been regarded as a particularly important enabler of organisational change by some scholars (e.g. Edmondson, 1999, Senge, 1990). Although there is increasing interest in team learning in recent times (Boon et al., 2013) there is as yet limited empirical research into team learning activities in the workplace (Kozlowski and Ilgen, 2006; Sessa et al., 2011). There is also a lack of agreement about the specific activities that comprise team learning, with a wide variety of definitions and descriptions (Decuyper et al., 2010).

Viewing the changes in this study through the lens of team learning helped to clarify useful ways of conceptualising team learning activities. A further aim of this research is thus to propose a clear and practical categorisation of the components of team learning, which may be applicable to other work teams in similar contexts.

Team learning literature

Scholarly literature on team learning indicates that interest in this area has grown out of the broader fields of research into organisational learning, and research into work team performance. Organisational learning has long been identified as an important process that enables organisations to make changes, innovations and improvements (Argyris and Schon, 1978; Cyert and March, 1963; March, 1991). The ability of parts of an organisation to learn and adapt has been seen as a necessary capability in situations where change is likely to be complex and emergent rather than straightforward and planned (Burnes, 2004; Balogun, 2006). Organisational learning has been studied at the levels of individuals, teams/groups, and whole organisations (Casey, 2005; Crossan et al., 1999). Team learning was postulated by Senge (1990, p.10) as 'vital because teams, not individuals, are the fundamental learning unit in modern organizations [...] unless teams can learn, the organization cannot learn'.

Team learning has been researched in a number of studies into work team effectiveness (Kozlowski and Ilgen, 2006; Mathieu et al., 2008). Research settings include surgical teams (Edmondson et al., 2001; Vashdi et al., 2013), the pharmaceutical and medical sector (Gibson and Vermeulen, 2003) teams of college students (Sessa et al., 2011; Van Offenbeeck, 2001) the oil and gas industry (Van der Vegt and Bunderson, 2005) and police and fire services (Boon, 2013). Researchers are, on the whole, interested in influences on work team performance, or more specifically the impact of team learning on team

performance, (Chan et al., 2003; Edmondson, 1999; Edmondson, 2002; Savelsbergh et al., 2010; Zellmer-Bruhn and Gibson, 2006).and the factors within the team or in its environment that are conducive to team learning (Boon et al., 2013; Bucic et al., 2010; Edmondson et al., 2001; Timmermans et al., 2011).

While research and literature in this area have multiplied in recent times, there is a lack of consensus about the meaning of 'team learning', epitomised by the identification of thirty different definitions of the term by Decuyper et al. (2010). Some researchers define team learning in terms of processes, whereas some define it in terms of outcomes (Decuyper et al., 2010) - a distinction that Edmondson (1999) identifies in earlier work in the broader field of organisational learning, in the outcome orientation of Levitt and March (1988) compared with the process orientation of Argyris and Schon (1978).

For example, Zellmer-Bruhn and Gibson (2006) treat team learning as an outcome - 'the creation of new collective work processes' (p. 502), as do Wilson et al. (2007) who define it as 'a change in the group's repertoire of potential behavior' (p. 1043). In this approach 'team learning is viewed as a relatively permanent change in the team's knowledge, skill, or behavior' (Sessa et al., 2011, p. 147).

However, researchers more commonly focus on team learning as a process. For example, Edmondson (2002, p. 129) defines team learning as 'a process in which a team takes action, obtains and reflects upon feedback, and makes changes to adapt or improve', while Fisser and Browaeys (2010, p. 63) define team learning as 'the process of sharing individual mental models by which through collective sense making a shared mental model is created and evolved'.

In the literature on team learning as a process, the lack of consensus that Decuyper et al. (2010) identified is apparent in the different behaviours that are considered to comprise team learning. For example, for Edmondson (1999) team learning is a process 'characterized by asking questions, seeking feedback, experimenting, reflecting on results, and discussing errors or unexpected outcomes of actions' (p. 4). For Van Offenbeeck (2001), team learning behaviours are: information acquisition, information distribution, convergent interpreting, divergent interpreting, and information storage and retrieval. For Gibson and Vermeulen (2003) the behaviours are: experimentation, reflective communication, and knowledge codification. For Van der Vegt and Bunderson (2005) team learning behaviours are 'activities by which team members seek to acquire, share, refine, or combine task-relevant knowledge through interaction with one another' (p. 534). Attempting to resolve different conceptualisations, Decuyper et al. (2010) propose that the core behaviours of team learning are sharing information, co-construction of shared meaning, constructive conflict, and information storage and retrieval, and ancillary behaviours are team reflexivity, team activity (i.e. work towards the tasks of the team) and boundary crossing.

In the literature on team learning as a process, there is general agreement that the exchange of information between team members is a key activity, although this is described in a variety of different ways. However, published research differs on the importance of taking action - of experimenting - for team learning.

Some scholars concentrate on processes of communication and cognition sharing. For example, Fisser and Browaeys (2010), Van den Bossche et al. (2006), Van der Vegt and Bunderson (2005), Van Offenbeek (2001), Van Woerkom and Croon (2009), Wilson et al. (2007) and Timmermans et al. (2011) focus on information management, interpretation and dialogue as the core activities of team learning.

Other scholars view experimentation and action as core components of team learning. For example, Edmondson (2003), regards making decisions, implementing new ideas, and

making changes as part of team learning. Edmondson (2002) argues that teams she studied that showed reflection and discussion but not action 'showed partial but incomplete team learning' (p. 133). Kasl et al. (1997) and Gibson and Vermeulen (2003) include experimentation in team learning activities, and Bucic et al. (2010) include the activity of the team 'making changes for improvement'. Savelsbergh et al. (2010) include implementing new ideas for performing the work task as part of team learning.

The literature on team learning processes inidicates that team learning behaviours have been described ina range of different ways. Comparison between the different perspectives on team learning and the behavioural patterns that emerged from the field data helped to shape the findings of this research.

Research context

The research was carried out into the activities of 35 healthcare therapy teams based in a range of different locations across England.

Healthcare therapists work in teams to provide a range of specialist therapies, such as physiotherapy, occupational therapy, speech and language therapy, podiatry and dietetics. Therapists are based in a variety of settings, within the community and in hospitals. In England, those who provide these therapies are qualified professionals, and are known as allied health professionals (AHPs). While different AHP therapists share some common characteristics, each specialism has its own professional knowledge base and history. Typically, therapies are accessed by patients through referral by a doctor - either a general practitioner, or a consultant. Therapy usually requires learning and activity on the part of patients, and often takes place over time.

Problems affecting therapy services can include long waiting times for treatment, which in many cases has a direct negative impact on the health outcomes for patients (DH, 2011a; JJ Consulting, 2011). In addition to reducing waiting times, managers and professionals are often concerned to measure and improve the quality and the productivity of services.

The Department of Health in England invited 97 teams of healthcare therapists to put forward proposals for improving their services. Following an evaluation of the proposals, the Department enrolled 30 teams in a national Service Improvement Project (hereafter called NSIP), which took place over the following 14 months. During that time, the 30 teams were provided with short training inputs and information about service improvement methodologies for healthcare, and a small amount of funding. In return, these NSIP teams were expected to develop and implement formal project plans to improve access to care, quality of care, and productivity, and to report on their achievements.

Twenty-seven of the teams completed the 14 month NSIP - three withdrew, each for different reasons, after nine months.

In addition to the teams that became part of NSIP, some of the 67 teams not offered support continued to make progress in changing their services. They are hereafter called 'independent' teams. During the lifetime of the NSIP, 24 of these independent teams indicated that they had made service improvements, either with the original proposal they had put to the Department, or with a related change (Boak et al., 2011).

The changes proposed by the different teams varied greatly, from single-specialism projects, conducted almost entirely within the boundaries of one organisation, to multi-disciplinary cross-organisational improvements. The smallest local team consisted of six members, whereas in other sites there was a need to coordinate the work of between 30 and 80 professional staff. One project concerned improving the therapy services provided to no

more than two patients a month, whereas another team estimated that they provided therapy to 18,000 patients a year.

Over the 14 month period of the NSIP, 24 of the NSIP teams and eight of the independent teams made major improvements in reducing waiting times for access to their services. Many services radically reduced their waiting times for routine appointments: for example, one service with an initial waiting time of 17 months reduced it to 2 weeks, another with a waiting time of 26 weeks reduced it to one week; other reductions were in the range of 40%-80% (Boak et al., 2011; DH, 2011b; DH 2011c).

Evidence on the quality of the changed services differed from team to team; it included high patient satisfaction, improved patient satisfaction (compared to a baseline measure), and in some cases a measured improvement in clinical outcomes. There were also indications of improvements in productivity and, at month 14, ten NSIP teams made projections of the annual savings that might accrue from the changes they made, which ranged from £1,900 in one small project to over £250,000 in a larger one. The details of the achievements of the NSIP local teams are set out in individual project reports and overall summaries (DH, 2011b).

The principal aim of this research was to understand the factors and processes that enabled the teams to achieve these improvements.

Methodology

Information was gathered and analysed from the final reports from the 27 NSIP teams, published in month 14 of the project, and from semi-structured telephone interviews, or email exchanges, with 21 team leaders, carried out six to seven months after the end of NSIP (13 NSIP team leaders and eight leaders of independent teams). Three team leaders were interviewed again 16 months after the end of NSIP (two NSIP team leaders and one leader of an independent team). Finally, after the information had been analysed, and a framework of team learning activities had been conceptualised, a summary of the findings was shared with five team leaders (all of NSIP teams) for their comments.

Table 1 shows the therapy teams that were included in the research, listed first according to the therapies provided by the teams: thirteen teams involved more than one single professional group. The columns show the patient groups they serve (children, or adults, or both), the location of the service (either in primary care - the community - or secondary care - hospitals - or both) and whether they were part of the NSIP or independent teams. The final column shows the number of teams that took part in the first interviews.

	Child	Adult	Child & Adult	Primary care	Second-ary care	P&S	NSIP	Ind	Interview
Physiotherapy (11)		11		7	3	1	6	5	9
Occupational Therapy (4)	2	1	1	4			4		3
Speech & Language Therapy (3)	3			2	1		3		3
Dietetics (2)	2				2		2		
Podiatry (1)		1		1			1		
Orthotics (1)		1				1	1		
Variety of therapies (13)	6	5	2	6	5	3	10	3	6

Table 1 The project teams included in the research

The final reports, submitted by each NSIP team, were accessed from the contact, help, advice and information network (CHAIN) website (http://chain.ulcc.ac.uk). They each followed a common structure, setting out a summary of achievements, the context of the service, the aims of the project, an account of what the team did, the results, the benefits, what the team planned to do next, and what advice the team offered others contemplating a similar change. The length of the reports range from 4,345 to 1,326 words, with an average of 2,057. As the aim of the research was to identify the factors and processes that enabled the teams to achieve improvements in their services, the most useful parts of the NSIP reports concerned the accounts of what the teams did, and what advice the teams offered others contemplating similar changes.

Interviews were sought with all NSIP team leaders six to seven months after the end of the national project. Thirteen team leaders responded and were interviewed or supplied information through an exchange of emails. Ten leaders of independent teams were contacted, and eight agreed to be interviewed, or supplied information through an exchange of emails. The NSIP teams had been recruited to the project from all parts of England, with two or three teams from each of the ten healthcare regions; coincidentally the ten regions were all represented in the 21 team leaders interviewed at this stage of the research.

The interviews/emails focused on ongoing progress with the changes, and also included team leaders' accounts of activities undertaken in order to achieve the changes. Questions to NSIP team leaders picked up on specific aspects of the changes, as revealed in the final reports. Interviews lasted between 20 and 35 minutes and were recorded and transcribed, or summarised. The total number of team leaders who provided interviews or information by email exchange at this point was 21, as in Table 1; there were 14 interviews and seven email exchanges. Further interviews with three team leaders were carried out 16 months after the end of NSIP: questions focused on ongoing progress with the change, and activities undertaken since the previous interview.

The reports and the interviews were analysed for common themes, and specific examples of actions and perceptions, using thematic analysis (Bryman, 2008; Saldana, 2013). Meaning was initially developed from the field data, rather than resulting from the application of a

theoretical framework. Saldana (2013, p. 177) notes that 'thematic analysis allows categories to emerge from the data' (p. 177); Gray (2014) describes this as 'inductive thematic analysis' where 'themes emerge from the data themselves' (p. 609). A related research approach is grounded theory (Glaser and Strauss, 1967); however, grounded theory entails theoretical sampling – the active search for more data to develop theory as research progresses (Suddaby, 2006), which did not form part of this study, hence it is more appropriate to describe the approach as an 'inductive thematic analysis' (Gray, 2014) or as a ‘grounded analysis’ (Easterby-Smith et al., 2012).

Themes that appeared common across a number of teams' accounts were identified and named. Early themes included: initially engaging team members, organising communications within the team, focusing on improving patient care, engaging external stakeholders, analysing processes and systems, data collection and analysis, objective setting and planning, maintaining momentum, monitoring progress.

Specific behaviours in relation to each of these themes varied across the teams. For example, communications within teams was a major organisational task for larger, geographically-dispersed teams, but relatively simple for smaller teams based on a single site. Cross-organisational changes naturally required activities to engage external stakeholders, but some projects were within-team and called for little of this engagement. Comparison between similar teams was useful in suggesting subtle differences in themes, while comparison between quite different teams was useful in suggesting similarities.

Whilst no explicit theoretical frameworks were applied in order to understand the processes by which the teams had achieved change, it was anticipated that theories previously applied in other research into change in healthcare - such as those concerning quality improvement (e.g. NHSI 2005; McNulty and Ferlie, 2002), or change leadership and management (e.g. Buchanan, 2003; Fitzgerald et al., 2013; Greenhalgh et al., 2004; Iles and Sutherland, 2001) - would be relevant, and could be used in later stages of the analysis in order to achieve a more comprehensive understanding of the factors that enabled the teams to achieve the changes. However, after the first round of 21 interviews had taken place, and an initial analysis of the reports had been carried out, the central role of learning, and shared learning, was observed, and a potential fit with organisational learning theory – and particularly team learning theory – was identified. The reports and interview transcripts were then systematically re-analysed from this perspective.

Using principles of thematic analysis, descriptions of a number of team learning activities were developed from this field data, supported by detailed quotations from the reports, interview transcripts and emails. Once the series of activities had been conceptualised, a thorough exploration of published theory on team learning was undertaken, and compared with the findings arising from this study. As Charmaz (2006) says of grounded theory research: 'The constant comparison method...does not end with completion of your data analysis. The literature review and theoretical framework can serve as valuable sources of comparison and analysis' (p. 165).

Finally, when the framework of team learning behaviours was established, having benefitted from comparison with relevant literature, team leaders who had contributed to the research were invited to comment on a summary of the findings. This measure is advocated as a means of ensuring and demonstrating credibility of qualitative research (Bryman, 2008; Cresswell, 2014). Five of the team leaders who had been interviewed at an earlier stage in the research reviewed the summary. All agreed that a team learning perspective helped to explain what had taken place in their teams, and all provided some helpful comments on the descriptions of the activities.

Findings

There was evidence in the field data that all the teams achieved service improvements by consciously and explicitly engaging in processes of learning about the workings of aspects of their services and systems. All teams appeared to learn more about the workings of the systems for providing therapy, and how to bring about changes to their services. Most teams learned more about how their service was regarded by others, including patients, and many teams learned more about practices of delivering similar services elsewhere. As the changes progressed, all teams learned to work in different ways.

Four broad learning processes evident in the teams could be described as:

1. *Communicating:* The learning processes were collective activities, involving all or some team members, and in most cases people outside the teams - including patients, carers, and other health and social care professionals - and so the learning processes involved communicating, and developing shared understandings.

2. *Analysing:* Teams analysed aspects of the service, before, during and after experimenting with new approaches.

3. *Experimenting:* Planning new ways of delivering aspects of the service, taking action, monitoring and evaluating results, and making adjustments where necessary.

4. *Improving knowledge and skills:* Many of the new interventions required learning and training, for example learning to use new screening and assessment tools, learning to provide therapy in new ways, training to develop the knowledge and skills of intermediate workers who were employed in new methods of service delivery. Alongside this individual learning, team members needed to learn different interactions with each other and with colleagues outside the team.

Moving to a finer level of detail, seven different team learning activities were identified as themes present in the data in the reports and interviews. Quotations in the following section referenced to publications are from final reports from NSIP teams, quotations referenced to team leads are from interviews or email exchanges.

Agreeing to examine specific parts of the service with a view to improvement

The learning process requires commitment by at least some team members to spend time considering how to improve services. This agreement was most frequently triggered by the acknowledgement of a problem that needed different actions in order to solve it.

> '[...] staff recognised the need for change with significant service pressures impacting upon morale and wellbeing. Staff acknowledged the need to work within the current financial envelope and find new ways of delivering services to address the identified priorities' (Brotherton and Porter, 2011: 2)

> 'Everybody [...] wanted to improve the quality of the service [...]' (NSIP team lead 10)

But there was not always this degree of agreement:

> ‘Reactions from the physios has been mixed – I would say that about 90% are in favour and 10% are negative.’ (NSIP team lead 12, talking about an extension of the original change).

> 'We had one member of the team [of six] who was very much on board, a senior therapist [...] and one member who was [...] a similar grade.. .who wasn't.' (NSIP team lead 11).
>
> One team lead reflected: '[...] they [the staff] really had to be convinced first, they don't like what they see as big risks especially when waiting times are involved. I think that's probably true with most clinical staff [...] one thing we hate is when patients are waiting longer than they should be clinically.' (Independent team lead 1).

Gathering and sharing information

In some cases the information the team needed was already held by one or more team members, but in the majority of cases teams sought information from patients, referrers or other parties (e.g. Clarke, 2011; Poupart, 2011; Thompson, 2011). Some teams sought information from similar services elsewhere (e.g. Hunter, 2011; Paddock, 2011; Ring, 2011; Robinson, 2011). Methods of gathering information included focus groups (Harding, 2011; Williams, 2011), surveys (Croysdale, 2011; Jolley, 2011) and consultations (Brotherton and Porter, 2011; Hughes, 2011; Tulloch, 2011).

Many of the project reports discuss the importance of systematic data collection and analysis. For example:

> 'Data collection was at the heart of the SIP [service improvement project]' (Croysdale 2011: 2).
>
> '[...] availability and use of data has been invaluable in identifying baselines and demonstrating the outcome of any changes' (Hart, 2011: 4).
>
> 'Other services can achieve what we have achieved by […] Demanding better data analysis given all the time spent entering it' (McDowell, 2011: 4).
>
> 'Data collection and analysis, [is] important from start to finish' (Blakey et al., 2011: 4).

Analysing information to identify problems and opportunities, including making new sense of aspects of the situation

Information newly gathered or newly shared enabled team members to look at elements of the service in a different light. In some cases structured analysis of the processes by which services were provided helped to identify areas of duplication or waste, or avoidable delay:

> 'Through the focus group a revised service process map was developed and changes to service contact points were introduced to streamline the referral and engagement process.' (Williams, 2011, p. 2).
>
> 'The team were involved in the mapping process and in setting out what they saw as an ideal service.' (Independent team lead 6).
>
> 'The service has had two time-out sessions to ensure that all working in the service were engaged in the project and to gain the valuable insights that each team member of group of staff could contribute to the programme.' (Tulloch, 2011, p. 2).

> ‘We are working on identifying areas where skills can be generalised, such as in mobility assessment and toilet assessment.’ (Member of independent team 7, talking about further developments of the change).

A common activity at this stage was reaching agreement on redefinitions of categories of patients and the treatments they should receive: this often involved the use of different tools to assess patients' needs (e.g. Berry, 2011; Paddock, 2011; Ring, 2011). This was followed by the development of ideas about ways of meeting the needs of different categories of patients, and the specification of new pathways of treatments (e.g. Carey, 2011; Harding, 2011; Harrison et al., 2011; Speake, 2011; Tostevin, 2011).

Planning different ways of delivering aspects of the service

Plans for change were agreed within all the services. Clear objectives were widely seen as being an important part of plans, and a key contributor to making progress. As one report said: 'It has been important to be clear about what we are trying to do and why and repeat this message frequently and loudly' (Speake, 2011: 4). Advice to others proffered in NSIP final reports included: '..have a very clear idea of the project and its purpose' (Carey, 2011: 2); 'Be clear about the tasks needed to achieve the aim and who will complete them' (McDowell, 2011: 2); 'Keep[ing] a clear focus on what it is that is to be achieved and [avoid]... trying to change too much too soon' (Williams, 2011: 4); 'Set small realistic achievable targets along the way' (Lewis, 2011: 4). One independent team lead advised: 'Have your plan in place and be very clear about how you want to achieve it' (Independent team lead 8).

The processes of sharing information, analysing it, and agreeing plans, were facilitated by group meetings:

> 'Redesign of both pathways involved small speech and language therapy working groups, with different team members contributing as appropriate. It involved looking at the evidence base, discussion about what was needed and how this might be rolled out across the county. At different stages we have had whole service discussion and feedback from everyone in the team has been encouraged’ (Speake, 2011, p. 2)

> '[…] it was a really very powerful tool, I think, having everyone together and having everyone make contributions to the decisions and the discussion' (NSIP team lead 10)

> '[We established] a cross speciality team including clinicians, management, administrators and information analyst to ensure merging of clinical, technical and administrative aspects of the service. The skill mix within the team enabled all aspects patient care to be merged to ensure a seamless, clinically valid, data driven pathway' (Harrison et al., 2011, p. 2)

> '[What helped was] a designated day to enable the working party to define and write the pathway [...] This required a commitment from a team of physios and midwives with support from senior management so this day was taken out of the short term service in order to improve long term service delivery and productivity.' (Independent team lead 4).

> 'Many of the comments were developed by the team or adapted by the team' (Poupart, 2011, p. 2).

Taking action

The actions taken by these teams can usefully be divided into a) taking preparatory measures - e.g. seeking support, developing resources, improving knowledge and skills and/or other aspects of infrastructure and b) 'going live', providing services in different ways to patients. The division between preparation and going live varied greatly between teams, depending on the change they contemplated. For example, three of the NSIP teams spent the 14 months of the project on taking preparatory measures.

Taking action often included engaging and communicating regularly with people outside the team whose contribution would be important to the success of the change. Depending on the nature of the change, this could be patient groups, senior practitioners, senior managers, and colleagues in other organisations (e.g. Hunter, 2011; Ring, 2011; Williams, 2011). The work of communicating with others included devising ways of gathering useful information from patients (Berry, 2011; Carey, 2011; Clarke, 2011; Paddock, 2011) developing and providing information, educational resources and training (e.g. Amlani, 2011; Carey, 2011; Clarke, 2011; Harrison et al., 2011; Thompson, 2011) and dialogue to agree ways of working productively in cooperation with others, such as GPs, education staff and other clinicians (e.g. Amlani, 2011; Croysdale, 2011; Hughes, 2011; Robinson, 2011):

> 'We have developed advice sheets for referrals, which are going onto the website. These will […] inform and educate referrers.' (NSIP team lead 3).
>
> 'The health [i.e. NHS] and county council OTs are engaged in subgroups to develop standardised processes and paperwork, including audit trails to support the pathways' (Hart, 2011, p. 2).
>
> 'The positive changes that we have made include identifying areas for skill sharing between professionals.' (Independent team lead 7).

Taking action also involved new clinical practices, and this was not always easy; for example, one team report noted: 'it was a challenge for many clinicians to let go and not be in control of when and if a patient came back' (Harding 2011, p. 2). Another team lead said: 'It's not a comfortable process...but the results of it were so good that the clinicians were actually saying "I didn't like it but...it's helped me"' (Independent team lead 8).

Monitoring and evaluating results

Information on progress and impact was regularly monitored. This information ranged from anecdotal reactions to structured performance data (e.g. Amlani, 2011; Harding, 2011; Hart, 2011). Some patient results could easily be monitored and compared with baseline data - e.g. waiting times, patient satisfaction scores (Berry, 2011; Brotherton and Porter, 2011; Carey, 2011; Robinson, 2011) - but there could be a long delay for others, such as clinical outcomes. The evaluations typically included team discussion and review of progress and of the feasibility of ongoing plans:

> '[…] we have a project meeting every two weeks and a full team meeting every month....we [also] have our team leads pulling out the data [on performance] and putting [it] on the wall for people to be aware of what they are doing [...]' (NSIP team lead 7).
>
> 'We've got a little project group set up, including my line manager, myself and a couple of Band 6 staff [...] to kind of keep an eye on things with the project, and look at what we need to do. We're aware we need to let it run for a bit and then get some

> more patient feedback and GP feedback [...] to see what they think of it now [...]' (NSIP team lead 8).
>
> 'We are in the process of auditing our parent/child experience and outcome measure questionnaires and we intend to send these out again in the next two months.' (NSIP team lead 11).

Making adjustments where appropriate

In some cases the adjustments simply took the form of changes to planned action, in other cases there was a rolling out of a pilot change to cover more services (e.g. Harding, 2011; Reid, 2011; Speake, 2011).

> '[…] we have "tweaked" our referral paperwork and incorporated some good practice from our other SLT colleagues in the area. We are also in the throes of making minor adjustments to our prioritisation tool as other colleagues within [the area] are now using it and contributing to the discussion' (NSIP team lead 10).
>
> 'We've aimed to mainstream [the change]. We are making progress in embedding it into everyday practice' (NSIP team lead 2).
>
> 'The pilot was extended to the full team in X Hospital and when we had further data from patients we extended it to the whole service' (NSIP team lead 7).
>
> 'The Service Improvement Project was initially a pilot, offering the service to a single General Practice and their population. Due to the results, the pilot has expanded and is now covering [...] a population of approximately 30,284' (Amlani, 2011, p. 4)
>
> 'We have already started injecting tennis elbows as part of an upper limb pathway. We will probably widen this out to other soft tissue injections over the next year. This will require some additional training and supervision but it is quite possible' (Independent team lead 2).

More than one team leader spoke of agreeing adjustments to the plans in discussion with team members, but at the same time pushing to ensure that the adjustments did not derail the planned improvement. As one said: 'I've been saying..."If you want to do it a different way that's fine but [...] you need to achieve the same outcomes"' (NSIP team lead 4)

Several reports stressed the importance of flexibility:

> 'Recognis[e] that things will never always go according to plan. Managing risks and potential barriers along the way will ensure the project continues and achieves its goals' (Harrison et al., 2011, p. 4).
>
> 'It is unlikely that any Project will entirely follow the original plan; staff need to be prepared to be flexible, to make changes and take opportunity of challenges that arise to allow continuous developments and improvements' (Clarke, 2011, p. 4).

In many cases the process involved experimental activities, with teams unsure of the results. The team might plan to make access to their service easier for patients, by changing some parts of the booking process, but they did not know how patients would respond - would the effects be to improve the service? Or (as happened in one case) might the team be overwhelmed by increased demand?

In one team, when the original plans did not produce the improvements required, it was decided part-way through the NSIP period to introduce a further change: the team leader reflected:

> '[...] this "Ring and rebook" [process] - which wasn't even an original part of the project but was a response to [the need to] do something about [...] follow-up DNAs – [...] has made a major difference [...]' (NSIP team lead 7).

Some projects were forced to make adjustments to halt or limit their plans:

> 'We intended to roll [the improvement] out into [the rest of the county] by now, but commissioners have served notice that […] in order to manage the pathway they want to have central control' (NSIP team lead 6).

> '[…] due to the various organisational changes and service pressures our project has done a U-turn' (NSIP team lead 13).

The seven team learning activities described above were apparent across the whole range of different teams, beneath differences of detail and form, and despite variations in scale or specialist area. Although the list implies a simple linear flow, the reality was in many cases more complex. With larger changes, teams were often at different stages with different aspects of their service improvement - at the same time planning one part of a change while also gathering further information on another part, and already taking preparatory steps for yet another part.

Discussion

What is the value of viewing these projects through the lens of team learning, rather than through alternative lenses, such as those of quality improvement or change leadership? The different perspective draws attention to different activities and processes, which appeared to be important enablers of change. Where changes are contemplated in similar circumstances elsewhere, applying a team learning framework may enable those who wish to achieve change to understand, and to encourage, initiate or support key processes that might otherwise be overlooked or undervalued. Thus this perspective may be of value to team leaders, team members, or more senior managers with authority over the team.

A focus on certain processes in a complex series of activities - in this case the processes of team learning - often comes at the price of overlooking or de-emphasising other processes. Reviewing the information from the reports and interviews, and reviewing the initial analyses of these from the perspectives of quality improvement and change leadership, the main processes that are de-emphasised appear to be those concerning engaging and persuading stakeholders. Whilst these are present to some extent in the team learning framework above (in the action stage) they were highlighted in reports and interviews to a greater extent than this representation. Team learning, therefore, was an important part of these change processes, but other activities were also required.

The seven-point conceptualisation of different team learning activities that arises from this research is different from previously published frameworks. It is clearly different from those studies that concentrate purely on information exchange and analysis (such as Fisser and Browaeys, 2010; Timmermans, 2011; Van der Vegt and Bunderson, 2005; Van Offenbeek, 2001; Wilson et al., 2007). Three of the seven components of the framework are concerned with the information-gathering, information-sharing and analysis activities of team learning, and these activities are certainly essential for team learning, but in these teams they would be insufficient. The action elements were also integral to the learning process and without

them the thinking and sharing activities would amount to no more than a partial form of learning.

The first of the seven activities - seeking agreement to spend time on examining specific aspects of the service - is identified in only a small number of other studies on team learning. For example, Edmondson (1999, p. 354) notes that '... learning behavior consumes time without assurance of results' and that some teams may therefore be resistant to spending time in this way, while Sessa and London (2008, p. 150) state that 'In order to stimulate learning, something must occur, either outside or inside the team that disturbs the team's status quo such that the team cannot continue working without changing in some way.This stimulates the learning process.' In many of the AHP teams, professional routines had been established, and particular ways of delivering therapy had become the norm, and so the agreement to rethink how the teams provided services was a significant step.

The planning, action and adjustment activities in this framework are more extensive and more formal in nature than in other descriptions of the experimenting elements of team learning (such as Bucic et al., 2010; Decuyper et al., 2010; Edmondson, 2003; Gibson and Vermeulen, 2003; Kasl et al., 1997; Kayes et al., 2005; Savelsbergh et al., 2010). From the accounts of team leaders in this study, it appears appropriate to distinguish these as separate activities. The importance of planning, based on analysis, and the importance for some teams of implementing preparatory action, are perhaps emphasised here because of the potential consequences of changed behaviour. Changes to patient care are not undertaken lightly, because of the potential risks to health and wellbeing, and changes in complex systems, involving the coordinated action of a number of healthcare professionals and practitioners, require forethought, agreement, and careful planning.

Conclusions

Team learning was central to the improvements undertaken by these therapy teams. Whilst there were differences in the scale and complexity of the changes they undertook, in the size of the teams, in their professional backgrounds, and in the precise strategies they employed to achieve change, team learning was important for the success of each of these projects.

In these cases, team learning activities can be explained broadly as communication, analysis, experimentation and improvement of knowledge and skills. At a finer level of detail, seven different activities can be distinguished, each of them important in enabling the teams to achieve the improvements they sought. In these cases, effective team learning required each of these seven activities. This conceptualisation of learning activities may be relevant for other contexts where teams of professionals address improvements to services, particularly where the consequences of their actions may have a significant impact, and further research in these contexts would be welcome.

A practical implication of this study is that leaders of organisations and of teams should consider encouraging team learning as a means of achieving change and positive organisational development. Leaders of teams have a significant role to play in enabling the seven team learning activities to take place within their team. More senior managers and leaders of organisations are in positions where they can positively influence the contextual factors that can provide vital support for team learning. Actions would include allowing time for learning and discussion, encouraging contributions from all team members and managing differences of opinion constructively, ensuring there is regular communication and updating, and being conscious of the experimental nature of new actions, and thus being prepared to change them.

Limitations

Limitations of this study are that interviews were mainly conducted with team leaders only (in a small number of cases other members of the team also took part), and their perceptions of what enabled or hindered success may have been different from those of other team members. In addition, more detailed information about each of the learning processes - such as is reported in the fine detail of other research (e.g. Savelsbergh et al., 2009; Van Offenbeek, 2001; Wilson et al., 2007) might have been accessed through gathering information from individual team members.

The final reports from the NSIP teams were produced for the Department of Health, primarily for purposes of project management reporting, and thus have the usual limitations of secondary data.

The relatively small number of teams involved in this research means that caution should be exercised about the extent to which the findings are generalisable to other teams, particularly those working in different contexts.

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