

Insider action research in palliative care – the challenges of implementing digital health in a hospice organisation in the UK

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Abstract: This paper describes the first-person experience of being a medical consultant and novice action researcher in a UK hospice setting. A new digital IT system resulted in unexpected changes to productivity. An action research methodology using cycles of co-operative inquiry with hospice staff was chosen to investigate. The new technology caused fears among hospice nurses that the authenticity of the hospice ethos would be lost. The hospice staff were concerned about the loss of their role and identity. Action cycles were used to positively transform the hospice nursing structure and admission process.

Keywords: insider action research, palliative care, digital health, identity

Investigación acción interna en cuidados paliativos- los retos de implementar sistemas digitales de salud en un hospicio en el Reino Unido

Resumen: Este artículo describe la experiencia en primera persona de ser simultáneamente un consultor médico y un investigador en la acción novato en un entorno de cuidados paliativos en el Reino Unido. El punto de partida para el caso fue un nuevo sistema de tecnologías de la información digitales que generó cambios inesperados en la productividad. Para investigar estos cambios se eligió una metodología de investigación-acción que consistió en ciclos de investigación cooperativa con el personal de cuidados paliativos. La nueva tecnología había hecho, a las enfermeras de cuidados paliativos, temer que se perdiera el auténtico espíritu de los cuidados paliativos. El personal del hospicio estaba preocupado por la pérdida de su rol y su identidad. Los ciclos de acción permitieron transformar positivamente la estructura de enfermería de cuidados paliativos y el proceso de admisión.

Palabras clave: investigación acción por internos, cuidados paliativos, salud digital, identidad

1. Introduction

This paper aims to describe the endeavours of a novice action researcher in a healthcare environment. A period of staff upheaval and conflict arose after the introduction of a digital

patient record into the inpatient unit of a hospice. The nursing staff found their workload increase, and the digital system limited their ability to admit patients to the ward. Through action, reflection, and learning, the hospice team explored this paradoxical reduction in organisational efficiency that the technology brought to their working lives and how it affected their perception of their role. It allowed the frontline staff a voice and communicative space so senior management could understand the unintended consequences of information technology (IT) investment.

Throughout the project, the inquiry group's perception of technology changed. Instead of being seen as a novel solution to improve efficiency, they recognised it as a significant factor in the crisis. The creation of the communicative space allowed the co-participants to express their voice and challenge the structures of power that wished to modernise hospice practices using technology. It enabled them to have agency in how they shifted their working practices to account for the technology and bring back the sense of identity in their role as hospice nurses.

Action research has been implemented in palliative care to bring about change and gain knowledge from practice (Hemberg & Bergdahl, 2020; Hockley & Froggatt, 2006; Hynes et al., 2012b; Jack et al., 2009; Kaiser et al., 2019; Molloy & Phelan, 2022). It recognises that participants have a say in how learning is gained about them and the decisions that may affect them. It is intensely political and requires the practitioner-researcher to understand the organisation's power structure and politics.

The World Health Organisation defines palliative care as “an approach that improves the quality of life of patients (adults and children) and their families who are facing problems associated with life-threatening illness. It prevents and relieves suffering through the early identification, correct assessment and treatment of pain and other problems, whether physical, psychosocial or spiritual” (World Health Organisation, n.d.). Although this definition is accepted, in a health organisation, several views about a particular operational problem or process exist. On the other hand, according to Bradbury (2015), action research is

“a democratic and participative orientation to knowledge creation. It brings together action and reflection, theory and practice, in the pursuit of practical solutions to issues of pressing concern. Action research is a pragmatic co-creation of knowing with, not about, people.”

Action research lies within the critical social theory paradigm and differs from the ontological standpoint of positivism (Hockley, 2012). The researcher does not study the issue through their lens; rather, the problem is studied with other participants in a process of joint meaning-making. Coghlan (2019) argues that

“action research focuses on simultaneous action and research in a collaborative manner.”

and describes how researchers can move between theory and practical knowing (the concept of “interiority”). Action research includes a self-knowledge process, allowing one to reflect and critique one's insights. A spiral of action research cycles (action, learning and reflection) guide the project. Reflexivity is a crucial feature of participatory action research and involves examining one's existing ways of thinking, assumptions and underlying patterns of values and worldviews (Kjellström & Mitchell, 2019). An action research approach was used because of the participative principles that lie at its core and to bridge the gap between theory and practice.

2. Positionality of the author

I had 11 years of clinical experience when I joined the hospice organisation as a senior medical practitioner. Three simultaneous change projects were happening. The first was the implementation of a digital record on the inpatient ward to bring it in line with the National Health Service (NHS) 5-year forward view (*NHS England, 2014*). The hospice was trying to conform with this national strategy that recommended that all healthcare records be digitised. The second project aimed to improve remote IT access for community hospice nurses. The third sought to record (and report) outcome measures. Each of these projects had its project manager and cross-service focus groups.

The research journey began in 2016 when I joined the organisation as a physician in palliative medicine. Examples of the use of action research by medical practitioners in the literature are few. Indeed, the non-positivist approach resulted in a steep learning curve, making the project rewarding and challenging at different times. The level of reflexivity required was not taught at medical school or on postgraduate research courses that I previously attended. It was also a challenge to step outside the positivist paradigm of biomedicine and hold the dual roles of insider-researcher and senior medical staff member. As a novice, I was apprehensive at various stages, having doubts and questions about the approach's effectiveness. I had to work through my elitist stance about positivist research compared to that grounded in other research philosophies.

My role as a newcomer to the hospice allowed easier identification and engagement with the hospice nurses (in contrast to being seen as an NHS manager bringing an external process-driven ethos). This dual role as a researcher and employee was challenging to navigate, not only because of the tensions inherent in such a position but also due to my internal struggles as a positivist biomedical researcher new to critical theory.

3. Presentation of the case and motivation for the study

Over the 12 months that followed the digitisation of the patient record, the waiting times and waiting list for patients to be admitted to the hospice grew. In tandem, the available beds in the hospice were not adequately used because there was a new limit on the number of patients that could be admitted daily. This bottleneck in the patient pathway caused a decrease in hospice bed occupancy and throughput. These measures are essential when negotiating contracts with the NHS clinical commissioning groups that pay for the services on behalf of the population. Even though the organisation was funded primarily through charitable donations, it still received a proportion of its annual budget from these contracts. Waiting list increases led to significant upset for the stakeholders such as patients and their families, community general practitioners, district nurses and hospital teams. The hospice managers and Board of Trustees were also concerned about the reputational risk to the organisation.

In the UK, patients are admitted to inpatient hospices from the community or acute hospital. They come for end-of-life care or management of complex physical or psychosocial problems. Patients could be in urgent need of a hospice bed and may choose to be admitted there instead of the acute hospital. The hospice has a different environment with a more

holistic ethos of care. Patients and families regard it as a place of safety to obtain relief from their suffering and distress. If there are delays in admission to a hospice bed, this can have a detrimental impact on the patient and their families.

I had learned about action research as part of a postgraduate business qualification and was encouraged to use it to explore an issue of concern in the workplace. I was motivated to improve the situation because of my clinical experience as a physician in palliative medicine and previous experience with quality improvement and IT. The hospice's CEO and executive directors supported action research because they believed it would help bring about transformation. The Board of Trustees and the executive team also wanted to develop the research profile and reputation of the hospice, moving from being a "research aware" to a "research active" institution (Payne & Turner, 2012).

Recent work by Nyman et al. (2016) describes how an action research project was nested into a broader quality improvement programme on a maternity unit to reduce inpatient stays and create continuous quality development. This allowed many action research cycles to take place alongside the initiatives happening as part of the wider departmental quality improvement work. Similarly, in this study, the action research project was "nested" into a broader hospice "inpatient review group", which had been initiated to contend with the crisis in hospice performance. This larger group's work consisted of interviews with the hospice Trustees, external reviews, audit reporting and developmental sessions with stakeholders. The action research project started at the same time. I made a presentation to senior management after a period of engagement with neighbouring hospices and the collection of baseline data. A creativity workshop took place, as well as interviews with staff members.

4. Basic concepts to understand the case

4.1. Productivity and performance paradoxes in healthcare

The "productivity paradox" was a term coined in 1987 by Robert Solow (1987), which described the lack of commercial growth despite investment in information technology. This phenomenon has been studied in healthcare (Hebert, 1998; Lapointe et al., 2011), and a sizeable body of research details how technology reconfigures health practices. Henwood and Marent (2019) describe the tension between different theoretical standpoints, namely how to avoid the extremes of social determinism and technological determinism while at the same time recognising the materiality of technology and the social relations that emerge from digital health. Some of these perspectives highlight how these tools disrupt traditional practices and hierarchies of care, whereas others focus on continuity and the adjustments required to balance technology and social relations.

There has been considerable investment in healthcare IT in the UK and the USA, with systematic reviews reporting it as a means of improving efficiency, cost and outcomes (Chaudhry et al., 2006; Kruse & Beane, 2018). Productivity in business is generally expressed as the ratio of output per unit of input. It is simple to define but challenging to measure because the value of a product or service for the end-user (patient) is dependent on less tangible factors. In healthcare, the language of productivity is prevalent; for example, the

Office of National Statistics in the UK has recorded productivity growth in the NHS from 1997 to 2014 (Wilkes, 2017)

The language of performance targets, productivity and efficiency has been used in healthcare since the 1970s when “new public management” (NPM) changed public sector accountability in many countries. Lewis (2016) explores the “performance paradox” between measurement and management and how it can lead to unintended and undesirable effects. It alters the priorities and practices of those delivering interventions (such as in healthcare) and results in worse outcomes for those who are meant to benefit (Lowe, 2013; Van Thiel & Leeuw, 2002). Both of these paradoxes (i.e. that of productivity and performance) became apparent as the co-operative inquiry progressed, illustrating the impact that digital change can have on a system with many complex components.

4.2. Different voices and lifeworlds in the same organisation

Hellstrom et al. (2010) describe the delicate balancing act of managing the different voices within a complex healthcare organisation. They explore Gouberman & Mintzberg’s (2001) description of how healthcare management initiatives fail due to the “horizontal cleavage” between those who work clinically (i.e. nurses and physicians) and those who do not (managers and trustees). The systems of healthcare are challenging to manage because of the distinction of their parts. They propose that the world of a healthcare system (such as a hospital) is composed of four, namely that of cure (physicians), care (nursing), control (managers) and community (trustees). Each of these distinctions has its mindset and reporting hierarchies. Nursing provides more or less continuous care and comes close to the overall organisers of the system. This division is also apparent in other work by Hynes et al., where different “voices” or “competing and unequal narratives” (Hynes et al., 2012a, 2015) challenge service development during co-operative inquiries.

4.3. Communicative spaces and knowledge creation in action research

Habermas’ theory of communicative action (1985) critiques functional reason expressed in a language of goals, rules, roles and organisational functions. He proposed that the communicative space offers a way out of the trap of functional reason that governs much of contemporary life. The operation of these systems cannot deal with practical questions about how social life happens between human beings. Crises occur at the boundary of these lifeworlds and systems, where functional reason can threaten culture, social integration and socialisation-individuation (people’s sense of personal identity) (Habermas, 1985). Within action research, paradoxes are inherent in opening communicative spaces. Wicks and Reason (2009) illustrate how the process can be mapped onto a theory of group development that proceeds through phases of inclusion, control and intimacy. In this liminal space between Habermas’ system and lifeworld, there exists the potential for new ways of communicating. Those initiating the action research process must hold together the opposing qualities within the communicative space.

Hayward (1998) develops Foucault’s theory (Sargiacomo, 2009) of de-facing power by defining it as a ‘network of social boundaries that constrain and enable action for all actors’.

These boundaries are shaped by discourse, and Hayward argues that freedom is the ability to act on these boundaries and shape them. Gaventa and Cornwall (2015) explore this in proposing that power is the capability to act on these boundaries, and broadening them may not necessarily limit the boundaries of others. Marginalised people can have a voice and capability, and can influence social and power relations. These groups are empowered through critical reflection and learning.

Gaventa and Cornwall (2015) outline Luke's (1974) and Foucault's (Sargiacomo, 2009) development of three dimensions of knowledge creation and how they relate to power. The first dimension describes how knowledge can be seen as a resource to inform debate and decision-making. In the second dimension, the control over the production of knowledge is used by the powerful to set the public agenda by including or excluding certain parties from acting upon it. The third dimension describes how power is used insidiously to prevent conflict from arising in the first place through means such as secrecy, media and education (Lukes, 1974). The current study demonstrated these action research themes of the communicative space and how power relates to knowledge creation

5. Method

5.1. Insider Action Research

Coghlan and Shani (2015) illustrate how undertaking action research in one's organisation can enhance organisational capabilities and impact change. The insider has to deal with emergent processes central to the research process itself (Coghlan, 2008). They propose three challenges for the insider of pre-understanding, role duality and organisational politics. Each can then be further examined in terms of first, second and third-person voice. First-person voice relates to one's assumptions, second-person involves collaboration with those that have long-standing relationships and third-person relates to the broader community of theory and practice. Pre-understanding means questioning familiar situations where things are taken for granted and facilitating teams to test these assumptions. It can help others to change their systems from within.

Role-duality describes holding and valuing both roles (employee and researcher) and dealing with conflicting demands. It can involve role negotiation with others, which can be challenging, particularly with superiors. Sharing this learning with the broader community of practice can add to the knowledge of roles in systems. From a second-person standpoint, action researchers have to build relationships and trust with people with different mental models and at different levels of the organisation (Pettigrew, 2003). Action researchers not only need to manage these three challenges of pre-understanding, role-duality, and organisational politics but also have to examine and reflect on them and share learning with the wider community.

Ospina (2004) explains how the democratic aspirations of action research are more challenging to realise in practice than in theory. I came from a leadership and management position in the organisation but also attempted to work on behalf of those using the new digital record in their day-to-day work. Participants were employees of the hospice charity and were therefore assumed to share values in line with the charity's mission and vision. Six came from

a nursing background, and two were from the IT support team. There was dissatisfaction with the new digital system, which motivated the participants to explore these issues within a safe communicative space.

5.2. Ethical considerations

Ethical approval for the study was obtained in July '18 from the Departmental Research Ethics Panel (DREP) under the terms of Anglia Ruskin University's Research Ethics Policy. Data was collected over three months (July to September 2018), whereas the timeframe in which all action cycles occurred was 12 months (July 2018 to June 2019). Written consent was obtained from all of the research participants before the creativity workshop and interviews.

5.3. Data collection

The data were collected iteratively and informally using a reflective log. It included personal notes from interviews with staff, management meetings and a "creativity workshop". Notes were also taken from communication with other hospices using a similar electronic health record. The themes from this log were used to inform meetings with colleagues. Feedback from staff about the digital health record and the change process was collected in the reflective log. This was used iteratively in interviews and management meetings.

6. Results

An action research group works towards intersubjective agreement, consensus and mutual understanding. A space is created where these boundary crises can be explored, and disagreements, learning and decisions can be debated openly. In the current study, the changing structure of the healthcare system collided with the lifeworld of the hospice staff. The paradoxical reduction in productivity seen after the introduction of digital health is an example of how functional reason (of the healthcare managers and the health system) threatened the culture and identity of the hospice nurses' lifeworld. The co-inquiry initially intended to improve efficiency in the hospice ward; however, this gave way to the collective understanding of the paradoxical forces at play. It led to an exploration of the impact of new technology on role delineation, staff relationships and the hospice nurses' personal and professional identity. The new technology threatened the social fabric of the hospice team because it was disruptive to the informal communication that happened between staff. Lichtenstein (2015) describes how emergence occurs in complex systems and how crises are the catalyst and can lead organisations to question their guiding assumptions. This can shift the organisational change from incremental to significant transformation.

6.1. How the action research progressed

A “creativity workshop” was held after a period of engagement and communication with the hospice staff. I was apprehensive that the action research project would be perceived as undermining the existing “inpatient review group” and that the staff would be reticent about engaging in research in general. I approached several nurses, management, and IT staff to explain the over-arching theory and aim of the action research. I emphasised how action research differed from traditional positivist approaches to research.

At the workshop were two registered nurses, a nursing ward manager, a practice development nurse, the clinical audit lead and two members of the clinical information team (who supported the electronic patient record system). The author presented data on PowerPoint to the workshop participants. This consisted of information about neighbouring hospices’ IT systems, admission processes and time taken to complete admissions. Participants discussed these data and were invited to write down what they thought needed to change to improve their processes. The workshop endorsed divergent and convergent thinking (Basadur, 1996). A creative atmosphere was encouraged, and it was emphasised that judgment would be suspended during that part of the workshop. The participants wrote down and collected their ideas, and each was discussed by the group. A reflective log entry was recorded after the workshop. The interviews took place shortly after the workshop and included questions about staffing, ward setup and management.

The process of change management during the introduction of the digital system was criticised by one practice development nurse in the interview;

P5: “people need to understand why change is happening. There is a way of changing and a way of accepting”

The increasing workload brought about by the new digital system had caused staff to plead for more resources; as one nurse expressed;

P2: “Call me crazy but I’m just putting it out there – what about an admission nurse?”

This was echoed by other participants, with calls for more dedicated “admission” roles for the nurses, doctors or healthcare assistants. If the responsibility for admitting a patient to the ward was more precise, this would take pressure off the rest of the nursing team on that day. Recruitment constraints were cited during the workshop as the limiting factor for this proposal. Other physical resources such as dedicated workstations were suggested;

P1: “I’d like to see a small workstation with a desk at each [4-bedded] bay – this would allow IT access and the bed folders could be kept at the nurse’s station”

One nurse reported that even with a dedicated space to complete digital patient notes, they would still be alert to the patient call bells and would allow themselves to be interrupted in order to help their colleagues.

P2: “it was about an hour for the computer stuff, then I went on break. After break I did another hour with the care plans and then I had to help with the 8pm medication round. I’ve been interrupted frequently during the shift – I can’t remember how many times. I’m still not finished even though my shift ends in 45 minutes”

They also reported the practical differences between the old paper-based record and the new digital record

P4: "its very simple to start writing in the paper notes and leave the desk if you are interrupted. Its quick and easy to come back, open up the chart and start writing again. With the computer, you have to find a free workstation, login to different systems and this really adds to the time taken"

A holistic assessment is a central component of palliative care. The impact of the digital system on the admission process was evident in the interviews with one senior staff nurse

P4: "the doctors shouldn't rigidly stick to a symptom checklist, but could perhaps start by letting the patient tell their story, or by asking about the family and filling in the family tree section"

As much information as possible is collected about the patient on admission to the hospice. If this is not done thoroughly on the day of the admission, it is unlikely to happen at a later point. Several nurses said there were missed opportunities to gather this information because of the digital record

P1: "what is the point if no one looks at the smartforms afterward?"

6.2. Paradoxes highlighted by the action research

Hebert (1998) studied the productivity paradox in healthcare systems in community-based and acute care hospitals in British Columbia, Canada. He proposed using a combination of Donabedian's healthcare framework (Donabedian, 1980, 1988) in combination with Grusec's (1986) three levels of IT impact (i.e. how structure, process and outcome are impacted through levels of substitution, proceduralisation and new capabilities). In the current study, the electronic record was intended to substitute the method of handwritten nursing/medical notes (structure). Instead, it affected what the nurses considered to constitute their work and took them away from the patient's bedside.

P1: "the admission took the whole shift"

The new IT system impacted the admission process by lengthening the time taken to complete this task. The role and responsibility changes Hebert (1998) noted were observed in this example. The introduction of the IT system eventually forced a change in who was responsible for completing the electronic documentation. During the workshop, one nurse asked about responsibilities around the new outcome measures that were being recorded on admission

P3: "why cant the doctors do more of the OACC work such as iPOS, AKPS, and why cant the doctors do more of the icare entry at the bedside?"

As the group discussed the issues in the workshop and the interviews, it became apparent that the new IT system had an unintended impact on how the nurses viewed their professional role and how they worked with their own patients and colleagues. The co-inquiry process in the communicative space made such an articulation possible.

P4: "we don't want to lose the holistic joint assessment – I've noticed more of a split between doctors and nurses with the electronic forms"

The managerialist ideologies underpinning the IT system's introduction also affected the nurses' relationship with their management team. The nurses were trying to contend with the expected increased productivity and performance promised by the new IT system. Instead, a

reduction in productivity happened because of new ways of knowledge and working imposed by technology.

6.3. Loss of power amid digital change

Even though the action research aimed to explore the effect of the new IT system, the proposed co-inquiry allowed these nurses to feel empowered and to voice their concerns. This highlighted a paradox of leadership faced by insider action researchers who hold senior positions in an organisation (Chowns, 2008; Marshall, 2017; Nolan, 2005). I attempted to create a democratic participatory space for the co-inquiry but was still being approached outside of this space to use my position to influence change. For example, two senior nurses approached me to express their concern about potential changes to the structure of the nursing teams on the hospice ward. The nursing management had proposed combining two nursing teams to make the rotas more manageable. This idea had been resisted by the nurses, who sought assurance from the author that the status quo would remain in place.

Management and governance meetings continued throughout the project. The findings from the action research process were shared at several points. The project helped empower the nurses to develop solutions to the problems brought by the new IT system so they could attempt to maintain their holistic clinical care. Some of these changes are described in Figure 1. These include changes to the inpatient ward, changes to the nursing care plan and changes in responsibility for who documents clinical admission. For example, the entire responsibility for documenting the holistic assessment had to be transferred to the admitting doctor, which allowed the nurse to complete the paper nursing care plans that had been organised into a “booklet”. The nursing rotas were amended to allow overlap between nursing shifts so that more staff were available in the afternoon to help with the admission.

7. Discussion

7.1. Summary of the concepts related to the case


The action research project opened a communicative space which allowed the co-participants to enact transformation. This allowed the different lifeworlds and voices to emerge and highlighted the shortcomings in how the digital change process was instigated. The re-configuration of connectivity, control and knowledge resulted in a paradoxical decline in productivity and performance.

The crisis in patient throughput and occupancy levels in the hospice necessitated the “inpatient review group” to begin its work. Nested within that group was the action research project which sought to bring about transformation through a participative process. In this inquiry, the action research approach allowed key staff members to collaboratively reflect and develop ways of working with change. It enabled the hospice team to recognise that introducing new technology led to changes to processes, staffing and organisational thinking.

P4: “we really need to be looking at what we’re recording, why we’re recording it, why we use it and whether we really need it”

Table 1 – co-operative inquiry action cycles

| Background work | Cycle 1 – Information gathering | Cycle 2 – participatory work | Cycle 3 – piloting changes and organisational reflection |
|--|--|--|---|
| Approaching and engaging with prospective co-researchers and the management team within the organisation | Engagement with other hospices for information on average admission times Measurement of admission times in hospice Sharing of information with staff and management team Engagement with other hospices for information on average admission times | Co-operative inquiry workshop (n=7) 1:1 interviews (n=5) Sharing results with the organisation's management team | Quiet room on the hospice ward Admission booklet Change in nursing shift structure Change in responsibility for documentation of admission notes |



The nurses chose to work in palliative care for personal and altruistic reasons. They sought to improve the quality of life for those who were dying and would often forego a higher salary being offered in the NHS hospital. Productivity at the hospice ward level (represented by throughput and occupancy levels) did not increase with the introduction of the technology. The changeover to the digital system raised fears about the loss of authenticity and the holistic approach. This disruption led to the nurses questioning their sense of purpose in their professional role;

P4: This isn't why I went into nursing

With these insights, the team was able to enact changes through action cycles that led to better adaptation to the new system.

Action research entails a collective group embarking on a change to their practices and practice architecture. People offer critical ability to gain insights into their practice and environment as a group. They meet with a shared commitment to communicative action. Kemmis et al. (2008) outline Habermas' theory of communicative action – his contribution to our understanding of public discourse in public spheres. These spheres come about by suspending hierarchical roles and rules, and presuppose communicative freedom. These spaces occur in response to circumstances, policies or decisions that lack legitimacy to those in public. The creativity workshop and interviews gave the nursing staff an equal footing to air their grievances and discuss solutions.

7.2. Reconfiguration of power and democratisation

Several frontline nurses were critical of the NHS managerialist ideology underpinning the change process. The technology was seen as an external influence from outside the organisation. It was perceived as an initiative imposed by managers who did not originally come from palliative nursing backgrounds. They frequently accused the management team of poor understanding of their role as hospice nurses.

P5: "Change had been instigated in a very dictatorial way"

Following the previously presented arguments by Hayward (1998), there was political fallout within the organisation during the project. The nurses and care staff were critical of a nursing manager, and this was fed back to the hospice board of trustees. This ultimately led to the manager submitting their resignation. The co-inquiry (workshop and interviews) allowed the grievances to enter the political arena between the powerful and powerless. The nursing team also gained the ability to change the structure of the nursing rotas to accommodate the increased workload.

7.3. Orders of change and organisational learning

Moch and Bartunek (Moch & Bartunek, 1990) describe three “orders of change” when considering organisational systems. First-order change is implemented within an existing manner of thinking. In this study, the changes to the admission template and the “admission booklet” are examples of first-order change. Second-order change occurs when the core assumptions that underpin a situation are questioned or altered. Third-order change occurs

when members of the organisation question their own attitudinal and cultural assumptions to bring about transformation. The reduction in occupancy and throughput prompted a change to the existing admission process, forcing the managers to question their assumptions about the efficiencies that IT brought to a busy hospice ward. The analysis of the research participants' beliefs was strengthened by information gathered from the creativity workshop, interviews and other hospices.

Some of the themes that emerged in the communicative space included the reconfiguration of knowledge, control and connectivity. The action cycles that produced new knowledge allowed the co-participants to challenge the "change" agenda in the hospice, and the assumptions that new technology brought to clinical practice. The deeper implication of introducing new IT was how it affected the hospice nurses' sense of their professional identity, particularly their relationship with their patients. The disruption to their established ways of working had a detrimental effect on their workload, thus affecting how much time and attention they could give to their patients. Many openly questioned their professional identity with the introduction of the new digital record. The participative co-inquiry gave them their own sense of agency and control. The digital technology caused deep-seated changes within the organisation, and a return to original levels of productivity was not met. The findings of the co-inquiry were shared with members of the hospice executive team. This allowed second-order change to happen and for the executives to question these assumptions about the promised benefits of digital health. The nurses felt empowered by the co-inquiry, and it gave them the agency to influence their staffing and practice on the hospice ward.

There were several limitations to this study. The project was limited by its timescale, as real organisational change can take many years to occur (Henderson & McKillop, 2007). The study setting was an 18-bed hospice in the UK with its local workforce challenges and historical context. Efforts were made to include a range of employees from different disciplines within the organisation. However, the lead author was a senior clinician in the organisation, and this could have influenced the research participants' engagement with the project. The creativity workshop and interviews were not recorded and transcribed for detailed analysis. However, journal entries were recorded immediately after each encounter, and a detailed reflective journal was kept throughout the course of the project.

The length and breadth of social science research offers valuable insights into the complexities of how technology arises in healthcare. Technology is enacted through promissory discourses and practices and is found to reconfigure knowledge, connectivity and control. This evidence could encourage small healthcare organisations to be cautious with their assumption that investment in health information technology will guarantee efficiency and productivity. Further research on levels of IT support and changes to staffing structure with new digital initiatives could help guide third-sector organisations with these projects.

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