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Transitions in workplace information practices and culture in healthcare: the influence of newcomers

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Abstract

Purpose – This study aims to empirically investigate how new healthcare professionals engage with information practices and information culture in their workplace, and the resulting influences on development and change.
Design/methodology/approach – A longitudinal study was conducted on a hospital training programme. Three series of focus groups provided data from 18 recently qualified nurses, supported by observations. The data was thematically analysed applying a framework consisting of six approaches to information use.
Findings – Newcomers take a proactive approach to seek, use and share scientific information, which is negotiated within existing information practices and organisational information culture. Their competencies, such as research skills, values, motivation and sense of integrity to use and share scientific information, often differ from those existing workplace practices. For this reason they drive towards renewal and change.
Practical implications – Examination of organisational approaches to information use indicates clearly the necessity for improvements to meet the needs of information proactiveness and thus be able to face challenges and changes in an organisation.
Originality/value – This work sheds new light on newcomers' information use, as they integrate into a workplace and interact with information practices and organisational approaches to information use. A significant contribution is the identification of the dynamics and interdependencies between newcomers' individual agency in their way of seeking, using and sharing information, and the established community's social agency promoting existing information practices and the organisational agency represented by information culture.

Introduction

This paper explores the relation between newcomers, workplace information culture and profession-bound information practices in an organisation. In the context of this study, the *newcomers* are recently qualified nurses in their first two years of work in the profession. Newcomers are in a process of movement from the periphery towards the core of their work community, this happens through learning and aligning their own performance to that of the community's work practices (Lave and Wenger, 1991). Among others, Gherardi (2006, p. 97) claims that: "Learning to become a competent member within a culture of practice is a process by which novices appropriate – within a culture of unequal power relations – the 'seeing', 'doing' and 'saying' that sustain this practice". However, this is a two-way process. Newcomers may have experiences that are not part of the existing competence in the community. The old-timers need to adjust to evolvements of the practice and the meaning of the practice is constantly renegotiated (Wenger, 1998). Several researchers emphasise that newcomers bring new knowledge, experiences and skills to the workplace, and that the newcomers choose how to engage with different learning opportunities (e.g. Billett, 2014; Fuller et al., 2005; Hodkinson et al., 2004). Fuller and colleagues (2005) found that newcomers in some cases were even considered experts, since they passed on new knowledge and skills to their community of practice. In this study, newcomers are viewed as both learners and educators.

Information culture is an elusive concept that has been defined in many different ways, ranging from an all-inclusive view on organisations' information and communication issues, to a more specific focus on how employees relate to information. In this study, *information culture* is seen as those organisational aspects that influence the use of information, or as described by Choo and colleagues: "the socially transmitted patterns of behaviors and values about the significance and use of information in an organization" (Choo et al., 2006, p. 492). The related concept of *information practice* refers to "information related activities and skills, constituted, justified and organized through the arrangements of a social site, and mediated socially and materially with the aim of producing shared understanding and mutual agreement about ways of knowing […]" (Lloyd, 2011, p. 285). Thus, information practice may be regarded as the role of information in activities in social settings, such as communities of some kind (cf. Cox, 2012). In contrast, information culture applies more readily to approaches to information use and its role in different activities from an organisational perspective, rather than the perspective of a community. In organisational contexts, information practice is a better term to refer to information related activities among organisationally unformalised communities consisting of people sharing both professional purpose and context of work, whereas information culture relates more readily to formal organisational constructs, such as departments or specially assigned teams. Apart from this paper, the difference is often elusive and not reflected on, let alone agreed on, which means that both terms may be used interchangeably in research literature. Moreover, the two are related, since certain information practices can partly be seen as a manifestation of values, rules and norms that are also considered as core aspects of information culture (cf. Choo et al., 2008).

In order to focus the present research, one fundamental aspect of information culture has been selected, and in this paper referred to as *approaches to information use*. According to Choo (2013), this aspect of information culture has been under explored, despite its presumably strong influence on information related activities of both experienced professionals and newcomers. Thus, this study aims to empirically investigate the dynamics between newcomers, communities' information practices and organisational information culture. The

first research question addresses how new healthcare professionals engage with professional (meaning: belonging to a profession) information practices and organisational information culture surrounding these practices:

RQ1. How do newcomers experience and respond to existing approaches to information use in an organisation?

The second research question explores the mechanisms of development and change as a result of this interaction:

RQ2. How do newcomers and information practices develop through interaction?

Theoretical framework

Information culture in terms of approaches to information use

The influential study by Marchand and colleagues (2001) surveyed managers from 25 different industries in 22 countries. The aim of the study was to illuminate how the interactions between people, information and technology affect business performance. One central finding was the importance of people's "information behaviors and values capability", which in this paper is referred to as *approaches to information use* to avoid conceptual confusion due to differing definitions of the term information behaviour in the work of Marchand and colleagues and information studies in general. In the Marchand and colleagues' study these approaches were found to include six interrelated dimensions that enhance effective information use: information integrity, formality, control, transparency, sharing and proactiveness. Each dimension is dependent on the previous one where information integrity is regarded as a basic requirement for the other dimensions. Information integrity is defined as "the use of information in a trustful and principled manner" and includes seeking and sharing accurate information and exercising good judgement. Information formality is related to "the willingness to use and trust institutionalised information over informal sources" to ensure efficient and consistent services. Formal information is information that is grounded on procedures and rules in the organisation. Information control refers to "the extent to which information about performance is continuously presented to people to manage and monitor their performance". Information transparency involves "openness in reporting and presentation of information on errors, failures, and mistakes" enabling learning and fostering change and innovation. Information sharing is defined as "the willingness to provide others with information in an appropriate and collaborative fashion" within teams and across departments. This is another conceptual anomaly, since this definition of information sharing is narrower than is normally used in information studies (cf. Pilerot, 2012), implying merely the transfer of information within a network. The most effective information use is described as information proactiveness that includes "the active concern to think about how to use information, obtain new information, and the desire to put useful information into action" to respond to changes and improve services. (Marchand et al., 2001, pp. 121-126).

The six approaches to information use have later been widely applied and validated by several empirical studies (e.g. Abrahamson and Goodman-Delahunty, 2013; Choo et al., 2008; Choo et al., 2006; Detlor et al., 2006). These studies identified a strong influence of approaches to information use, which gave rise to various outcomes of the use of information in the different organisations. However, approaches to information use appear to be dependent on the type of

business. For the policing organisations, approaches related to information proactiveness were found to be the most important kinds of approaches due to the need to keep abreast of changes in society and find solutions to new challenges (Abrahamson and Goodman-Delahunty, 2013). Informal information use was significant to the law firm, probably because of the importance of personal networks in the legal profession (Choo et al., 2006; Choo et al., 2008), while recorded information, transparency, formal information sharing internally and externally were essential to the health research organisation, possibly due to their scientific approach and a mandate to disseminate research findings (Choo et al., 2008). Detlor and colleagues (2006) conclude that the approaches to information use in an organisation have a significant influence on the employees' information related activities.

Newcomers, information practices and change

Healthcare organisations are subject to considerable and frequent change (Curry and Moore, 2003). Working as a professional in a modern healthcare organisation involves dealing with evidence-based procedures, standardised tools and information technology. The overwhelming accessibility of information puts pressure on professionals to keep up-to-date with new developments. Patients expect the best available treatment and challenge the professional authority with their active participation; the abundance of information has transformed them from passive receivers of care to informed partners in the provision of care. Information about potential diagnoses and treatment may be mutually shared between the professionals and their patients (Känsäkoski, 2017; Hult et al., 2016). Such changes in the healthcare domain challenge existing information practices and push towards greater organisational responsiveness for change and innovation (Curry and Moore, 2003).

Generally, social practices refer to repeated activities that are reproduced in their contexts, thus they have been considered as relatively stable phenomena. Giddens (1984) characterises practices as a mutually repeating duality between social structures and human agency. However, he emphasises that the social structures include rules and resources that can be changed when humans reproduce them differently in their activities. Related ideas have been presented in several influential publications (e.g. Schatzki, 2002; Shove et al., 2012; Wenger, 1998). Doings, sayings, understandings, rules and teleoaffective structures frequently change by processes that Schatzki refers to as 'reorganisation' and 'recomposition'. Changes can happen in response to different occurrences and can involve borrowing elements or taking inspiration from other practices (Schatzki, 2002). Practices change and travel between different contexts due to changes in materials, competencies and meanings from which the practices are performed. Materials include objects, tools, technology, bodies and other physical entities. Competencies represent skills, know-how, understandings and techniques, and meanings including mental activities like emotions, motivation, beliefs, purposes and ideas (Shove et al., 2012). Competencies also involve experience, and members of a community bring their personal experiences into any practice in which they participate. This may challenge and possibly change the socially defined competence of the community (cf. Wenger, 1998).

Previous empirical research in information studies on newcomers and information practices emphasises the importance of on-site learning at work. The movement from periphery to full participation is described as the movement from being able to *act* as a professional to *becoming* a professional. People are learning to *act* through textual, procedure-based information in preparatory training, however, they are dependent on embodied inter-subjective learning in context to *become* a professional (Lloyd, 2009; Moring, 2011; Lloyd and Somerville, 2006). The move from preparatory training to the workplace "necessitates a

move away from epistemic knowledge towards a greater emphasis on social and physical information as a source of reflection and reflexivity" (Lloyd, 2009, p. 417). Nevertheless, Känsäkoski and Huotari (2016) found that health professionals are preoccupied with biomedical, scientific information. Furthermore, the professionals are keen to share this information within their professional group or team, but the organisational culture may hinder information sharing across professional groups and organisational units.

Newcomers to an organisation have been given more attention in educational research and research related to organisational socialisation. The findings in some of these empirical studies are related to the present case study. Newcomers who take a proactive role to seek information acquire a better ability to perform their tasks and integrate well into the organisation having easier access to the community (Morrison, 1993; Paré and Le Maistre, 2006). Paré and Le Maistre (2006, p. 378) found that newcomers who "take chances, dare to fail, set their own goals, [and] ask hard questions" have a better experience of workplace learning than others. Additionally, challenging the existing practice stimulates and changes the community as the habitual practice will be reconsidered and may even be revised. Thus, proactive newcomers may lead to mutual transformation of both newcomers and community (Paré and Le Maistre, 2006).

The relation between the above concepts may be summarised as an open system of three different levels: organisational, professional and individual (see Figure 1).

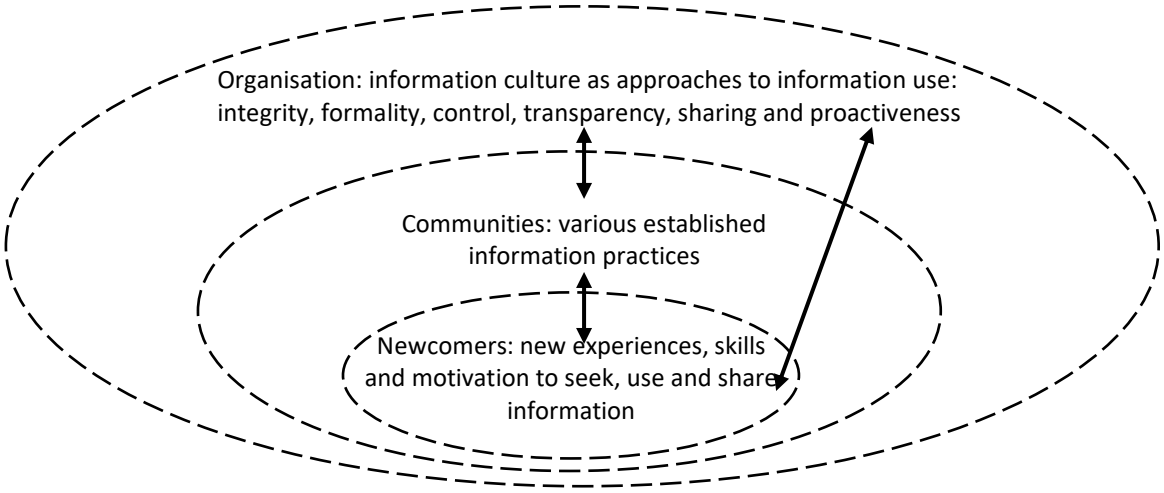

Figure 1: The dynamic relation between newcomers and new ways of seeking, using and sharing information, exisiting information practices in communities and organisational information culture

Methods

An ethnographically inspired study was conducted in a two-year workplace-training programme for newly qualified nurses in a large community hospital in Norway between 2014 and 2017. Twelve nurses were recruited in 2014 and six more nurses in 2015; in total 15 women and three men aged between 24 and 48. The purpose of the programme was to train these new recruits to be confident, flexible and capable to work on different wards. Thus, the nurses in the programme were assigned to surgical, medical and psychiatric wards with an eight-month period in each. They got no more training or supervision than other new nurses on the wards; however, unlike most of their colleagues, they worked on a full-time basis. The significant difference was the monthly simulation exercises and lectures given by dedicated

specialist nurses and other experts. The simulation exercises took place in the hospital's fully equipped simulation centre and included procedures like advanced cardiac pulmonary resuscitation, intubation and insertion of various catheters. Furthermore, they received training in non-technical skills like documentation, ethical reflection, efficient teamwork and the use of assessment and communication tools. Some of these exercises included video-assisted feedback to allow for reflection-on-action. The lectures covered subjects like infection control, handling critically ill patients and so on. Moreover, every monthly session had allocated time for participants to share experiences.

Data collection

The data collection was done through focus groups and observation in the training progamme. The first series of focus groups was conducted in the first week of the programme. By that time, most of the newcomers had worked a few weeks during the summer. The second series was conducted ten months later, midway in the programme, and the third series took place at the end of the programme, around twenty months after the start. There were six nurses in each focus group; two groups of nurses recruited in 2014 and one recruited in 2015. A semi-structured interview guide was e-mailed to all the participants one week before each focus group meeting.

The first series of data collection involved questions concerning how the nurses use different information sources to cope with the transition between the education environment and their workplace. Preliminary data analysis was undertaken during both data collection and transcription by making notes about possible codes and themes (cf. Grbich, 2013). One of the main themes that appeared was handling conflicting information from different information modalities, reported in Nordsteien (2017), and this theme was further elaborated in the second focus group series. Another interesting theme that emerged in this round was cultural aspects concerning information use, and thus the third series raised questions about these cultural aspects and development of practices. All focus groups were conducted in Norwegian, audiotaped, transcribed verbatim and imported into NVivo11.

Observation involved participating in all of the monthly exercises and lectures in the programme, as well as during evaluation meetings with the hospital ward management and the simulation centre, and three midway follow-up conversations between the project manager and individual nurses in the training programme. Additionally, one of the nurses was shadowed at a shift on her ward. The findings are for the most part based on the analysis of the focus group discussions, and observation data will not be presented in this paper. However, these observations have been valuable to capture what is going on in the workplace and in the training programme, and thus to be able to introduce relevant themes to discuss in the focus groups.

Written informed consent was obtained from all the participants and a representative of the hospital management. Names of the participants, hospital and wards were removed in the transcriptions. The participants were given codes from N1 to N25. The Norwegian Social Science Data Services approved the study in June 2014 (project no. 39107).

Data analysis

Thematic analysis was conducted and assisted by using the programme NVivo11 inspired by Bazeley (2013). The first step was to identify and take notes about emerging topics and possible codes arising during the processes of the focus group discussions and observations. This involved listening through the recordings, transcribing and analysing the transcripts. Based on the two first focus group series and first year observations, the most prominent codes that emerged were trust, distrust, integrity, frustration, resistance, sanctions, support, negotiation, change, interprofessional relations, management and theory-driven codes like epistemic, social and bodily information. Code descriptions were made for each code in NVivo11 to improve the consistency of applying codes, and notes were written about thoughts of relationships between the codes and possible patterns in the data. The second step was to develop an initial thematic framework. The structured coding system of Bazeley (2013, p. 182) was used as a guide to generate categories. The most prominent categories were information needs, information strategies, information outcome and organisational culture. The third step was the application of the analytical framework on all the material; that meant assigning text passages to the defined nodes in NVivo11. The coding of data material was reviewed to double check the consistency of coding, which resulted in reapplying a small number of the codes. The data was summarised and displayed in a longitudinal matrix to illuminate the newcomers' change in experience over the three focus group series. This made it possible to identify relationships and patterns in the data.

One of the recurrent themes was organisational culture in relation to information seeking, sharing and use. A literature search for a relevant analytical framework led to the approaches to information use of Marchand and colleagues (2001), which seemed to be applicable to this theme. The material was recategorised into the six approaches to information use, and these guide the presentation of the findings in this paper.

Findings

The six approaches to information use identified by Marchand et al. (2001) are: information integrity, formality, control, transparency, sharing and proactiveness. As these are at times interdependent, there will be some overlap in the presentation of the six approaches through research data. The findings demonstrate how the newcomers experience aspects of these approaches and of the information practices on their respective wards, as well as how they respond. Changes in the new nurses' experiences expressed during the three focus group series are specifically highlighted.

Information integrity: 'I can't justify doing it that way'

As earlier defined, information integrity includes seeking, sharing and using accurate information in a trustful and principled manner. Integrity points to ethical boundaries for all information related activities, and directly influences information formality. This is illustrated by the following quotes from the interviews. For example, the procedure manual that contains updated and approved research-based information on how to perform various tasks is considered the most reliable and accurate information source. The general approach in the hospital seems to be: to find the relevant procedure, share it with the colleagues and act according to it. Many quotes relate to this:

> There is a strong focus on the procedure manual. (N3, 1st series)

> They are using the procedures, although they have been working there for many years. (N2, 1st series)

> On my ward, they use the procedures; printing them out and adding them to the patient records when it is important. (N22, 1st series)

These experiences from the first focus group series were less nuanced than those expressed in the last two series. In the last two series of interviews several practices were identified as co-existing on the wards. The newcomers noticed that the information they received from colleagues about how to do various patient-related tasks was sometimes inaccurate:

> You notice that when you ask about procedures, you often get an incorrect answer. (N4, 3rd series)

> Since I experienced that it [the information requested] was completely wrong, I no longer trust my colleagues 100 percent. (N1, 2nd series)

Sometimes the newcomers observe that some colleagues are consciously not acting according to the procedure manual, adapting the procedures as it suits them or having "bad routines". The newcomers have different strategies to deal with such situations and they meet different responses when they make their colleagues aware of incorrect performance. The quote below summarises most of these issues well:

> I don't feel confident enough to speak up in all cases, but sometimes if I notify the person in a pleasant way or tell them that 'I've read this and that and why do you do it this way?' Then I get a lot of different responses. Some say that they don't have the time, actually, this is often the response; they don't have the time to do it the way they've learnt it! Sometimes they just say 'that's how I've learnt to do it' and they are not able to do it differently. And others say 'read the procedures, do it the way you've learned, it is probably right'. And some just get annoyed. The response depends very much on the individual. (N22, 1st series)

In the first focus group series, the newcomers emphasised very clearly that they wanted to do what is justifiable and right. They stressed the importance of patient safety, and they wanted to be considered skilled professionals:

> I want to do it the way I know is right, so I can feel satisfied and confident with what I'm doing, and not just do it the way all the others on the ward do with their bad habits. (N3, 1st series)

> You should maintain your good habits, although other nurses might tell you not to do it that way, because they're not used to it. This is the way I do it, because I know it's justifiable and right. (N3, 1st series)

> Even though the other nurses do it that way, I'll not, I can't justify doing it that way, because I want to be considered a skilled professional. (N2, 1st series)

In the first two series, some of the newcomers expressed frustration about being a newcomer and not confident enough to speak out about situations that might cause harm to the patients.

As one nurse expressed "it's difficult, I felt I had good control of the situation, but being new on the ward, I wasn't tough enough to say so directly" (N20, 2nd series). However, at the end of the training period they felt more confident. They explained that it was easier to justify their choices, because they felt more certain about their identity and ambitions:

> I feel like quite a conscientious nurse, making decisions on the basis of assessment instead of just following the crowd. (N3, 3rd series)

> It's about finding how I want to behave as a nurse, how I want to perform, how I want to plan my day. I have to comply with the laws and rules on the wards, but I don't have to do the same as the others. If I think it's not the optimal way to perform, I don't have to do it, because I can justify why I do things differently. Two years ago, I didn't dare to do this. (N2, 3rd series)

Even though information integrity seemed to be a dominating cultural trait amongst health professionals in the hospital, there were varying practices on different wards and between colleagues. The participants described that their colleagues on ward did not always practice as they expounded. However, the newcomers as a group demonstrated integrity towards information use and seemed to preserve and enforce this approach into the information practices they met throughout the two first years in the hospital.

Information formality: 'We should consult the correct sources'

Information formality refers to the willingness to use and trust institutionalised information over informal sources. Providing information integrity in the form of accurate and trustworthy institutionalised information, people are likely to trust and use formal information (cf. Marchand et al., 2001). In this case study, the most important institutionalised information is the procedure manual, as documented above. Other extensively used formal information include the patient records, various assessment tools and handbooks concerning drug information, diagnoses, medical terms and legislation. Additionally, all employees are encouraged by the management to read information on the Intranet, newsletters, e-mails and conducting e-learning courses to keep themselves up-to-date on new information:

> N23: It's really great that the newest procedures and changes are written in a newsletter.
> N25: Yes, we got them [new procedures] on e-mail, and then we are notified. It's nice. (3rd series)

Staff are also encouraged to use national guidelines: "On the ward, I was told to read the national guidelines on these diagnoses" (N10, 1st series). National procedures and other scientific information are also emphasised in cases where the necessary information is not provided by the hospital information systems. However, information provided by the hospital has primacy. This is demonstrated by the following quotes:

> I experience that many more people use the hospital procedure manual [than the national procedures] if the information is found there. (N5, 1st series)

> You may risk a national procedure not being approved for use in this hospital. (N2, 1st series)

> The procedure manual is the main thing for this hospital. Someone has assessed this information and decided that we shall do this because… and there are also references. (N2, 1st series)

This last quote indicates the importance of the procedures being grounded on scientific information. This trend seems to affect the information practices in the hospital, since searching, using and sharing scientific information seem to be relatively common:

> On the ward where I am now, they are very concerned about research. I feel research is much more easily available now. People working there often say: 'this research shows...' and 'yesterday, I read this'. So, they are quite up-to-date and this [research publications] is readily available to me as a newcomer, if there is anything I'm wondering about. There is so much information that is easily available to us, so you don't always have to do literature searches, but if it's something you're engaged in, you'll automatically go and do a search. (N22, 1st series)

Formal information is often complemented by informal information and vice versa as this exchange demonstrates:

> N4: I often ask colleagues, but when it comes to procedures I don't know, I always double-check the procedure manual, because there may be changes people don't know about.
> N1: It's fine to both read the procedure, and ask colleagues, but maybe reassure oneself with the procedure.
> N4: And it's easier to understand the procedures with comments from colleagues if you are not sure about something. (2nd series)

Thus, they read the procedures in cases when they are not sure what to do or when they face a new task, preferably in combination with watching a video or observing a colleague performing the task:

> There was also a video, and I watched this before I conducted the task and that made it easier to understand. Another time when I didn't understand a procedure and I couldn't visualise it, I asked a colleague to demonstrate. (N20, 1st series)

These findings indicate that formal information is preferred, although in combination with informal information. The challenge is to stay up-to-date, because the procedures are frequently changed based on the latest scientific information: "New things happen all the time, you never get to know everything, there are new guidelines and new treatment methods, and these are updated all the time" (N2, 3rd series). Consequently, the newcomers consult the procedure manual regularly: "With respect to procedures, I don't think I'm using them less, I think I have used them as extensively all the time; from when I started until now, because there is always something new" (N3, 2nd series). This approach remained dominant in the third focus group series. As time progressed, the newcomers felt more confident and promoted the procedures and even taught their colleagues where to find formal and correct information:

> It's about raising awareness of what's out there: keys, utilities and resources. When you know these, you become more independent in making decisions and... more confident, I believe. (N2, 3rd series)

> If people wonder about something, we should learn about it together. We should consult the correct sources and make others to do the same. (N3, 3rd series)

> They all panicked and I just said 'there is a procedure here, just follow it' and then it was easy, because I knew about it and had experience of it on several occasions, so I was confident about it. It was fine. (N25, 3rd series)

The newcomers characterise the procedure manual as a safe, easy and efficient information source to base their performance on. The willingness to base performance on formal information complies with an idea that the services in an organisation should be consistent.

Information control and transparency: 'I reported an error I made, that way I never forget it'

Information control and transparency are intertwined themes in the data material, thus, they will be presented together in this analysis. Information control refers to information presented to employees to manage and monitor their performance. Information transparency includes openness in reporting errors, failures and mistakes, which were the main discussion theme during the focus groups relating to these two approaches. The relation between transparency and control also touches on information formality and integrity, since errors and failures are often categorised as violation of procedures or other formal information in the organisation. In turn information control establishes a format for how such errors can be managed amongst employees. In this way the approaches to information control, transparency and formality are strongly connected to organisational learning. There seems to be a large focus in the hospital on reporting errors, and newcomers are encouraged by management and colleagues to do it: "We're often reminded to 'report errors, it's important!' it's repeated frequently" (N20, 3rd series). A mandatory e-learning course provides information on when to report errors and how to use the electronic error reporting system. Most of the newcomers report errors they themselves have made, while some report even errors by others as this exchange demonstrates:

> N25: When I report errors, they're errors I have made, but when I see something others have done, then I don't report it.
> N20: It depends on the case. I have done it due to the severity of the error. (3rd series)

Thus, there are different motivations for reporting errors. The severity of the incident is important as indicated above. For example, cases with patient injuries have to be acted upon. Moreover, the newcomers say that they want to "learn from the mistakes" (N24, 3rd series). Another nurse emphasised this point: "I reported an error I made, that way I never forget it!" (N21, 2nd series). An additional motivation for reporting errors was to highlight the consequences of having too few personnel on duty:

> It was a severe incident, when we had so much to do that we weren't able to help a patient with the morning care routines until dinner time, when she was going to bed again. This is a case I want feedback on. (N24, 3rd series)

This quote also indicates the importance of feedback. However, the newcomers reported that they seldom got feedback on the error reports, thus, they felt that they were wasting time reporting the errors: "I feel that it [reporting] is of no use" (N25, 3rd series). Another nurse commented that feedback via e-mail including something like "actions taken" would have

been proper and "then I would have reported even more errors" (N20, 3rd series). Furthermore, the newcomers observed that their colleagues, who have been working on the wards for a long time, reported fewer errors, because no improvements followed.

Similarly, feedback on work performance was repeatedly missed:

> I'm looking forward to getting some kind of structure and follow-up being new on my ward, because I feel there was no such thing on the other two wards. So I'm looking forward to get some attention and feedback to ensure that I will reach the proper level (N20, 3rd series).

> N25: I feel that people… and me too, are good at telling if I do something wrong and not so good at telling if I don't do something bad. If I don't hear anything, I think everything is fine.
> N24: Yes, I also think so.
> N21: I think that the culture is not to brag, but we *should* brag about some colleagues sometimes, then they will brag about you, and that's good for the work environment, that you encourage such a culture. (3rd series)

Despite little response, some of the newcomers kept promoting the reporting of errors: "I've told many people that the only way to show you have too much to do is to report it. But, they never do" (N25, 3rd series). They also kept promoting a culture that created a safe, open and pleasant atmosphere. The newcomers seemed to want to contribute to a culture that was tolerant both of reporting errors and mistakes as well as discussing their work practices and work performance:

> I think that it's very important that you are acknowledged when reporting errors. We should try to establish a culture where it's okay for people to report errors. (Nurse 21, 1stseries)

> They [experienced colleagues] have to be more open to questions about why they act differently. It should be allowed to ask why they do as they do, maybe I'm doing something wrong". (N8, 1st series)

> We have to ask for feedback. I wasn't good at that on my first ward. Eventually, I understood that I benefit from getting some feedback and talking with people about my performance. Now I've become better at asking for it. (N21, 3rd series)

These two approaches were mainly brought up as themes in the last focus group series, however, as the last quote demonstrates, some experienced how beneficial it is to get feedback and they probably became more confident asking for feedback in the second year. Some of these quotes express that the newcomers wanted to contribute to a change in culture in terms of error reporting as well as creating space for positive feedback and a more open work environment.

Information sharing: 'everyone is open to sharing information with others'

Information sharing here refers to providing formal and informal information within the team, across departments and to external partners. The relation to information integrity is to share or ask for accurate information, which often involves formal information. Sharing information may in part involve being transparent with errors and giving feedback on performance. The newcomers describe the workplace culture as characterised by continuous and mutual information sharing between newcomers and experienced colleagues as is illustrated in the following exchanges:

> Like you say, you can ask everybody about whatever you need to know, whenever you like and then everything is fine. Everybody is clear that you are allowed to be new, and that's a moral response shared by everybody on the ward. Then it's actually nice to be new. (N21, 1st series)

> Also when I get a question I don't know the answer to, I like to motivate 'come, we should go and ask, then I will learn it too'. (N20, 3rd series)

There is an expectation that newcomers ask colleagues for help as "they think it's stranger if you don't ask" (N22, 1st series). However, learning goes both ways, because information is mutually shared, and the newcomers are acknowledged for the knowledge they possess:

> Some of my colleagues haven't dealt with these procedures for 20 years. So, they asked me to take care of these patients, but then I said that they should observe what I do and that I will teach them how to do it, so they will be able to handle it themselves next time. And that's been much appreciated on the ward, and I am very happy about the fact that, I, being newly graduated and not knowing so much, am able to teach my colleagues something, and that they respond positively to updating their skills. (N21, 1st series)

> I think we are more aware of the differences, since we have been working on three wards, we adapt better and see more opportunities than problems and make suggestions about what might work best. (N7, 3rd series)

The newcomers point out that there also is a culture of information sharing between nurses and physicians, and that this relation has become more equal resulting in an improvement of communication between the professions:

> Physicians… sharing knowledge has improved, the hierarchy that existed a few years ago is disappearing. Now it's okay to go and talk with them: 'Hi, now I'm going to do something I haven't done for a long time, what's the latest approach in this field?' It's okay to talk with the senior physician and other colleagues, and everyone is open to sharing information with others in a completely different way. (N21, 1st series)

Obviously, the nurses and physicians have to share patient information daily. However, the nurses' awareness of research has increased during the past years and the physicians are aware of that. This may have contributed to more equality between the professions as reported above, and the quotes below illustrate this further:

> I asked a physician a question and he said 'No, I actually don't know that, but let's do a

> search, please sit down'. And then he accessed the research database. (N23, 2nd series)
>
> I've experienced only one big change in a procedure. The physician presented it and justified it based on research and practice at other hospitals in Norway and abroad. (N20, 3rd series)

The newcomers reported that they are experiencing a new culture in the hospital as physicians and nurses often share research findings in discussions with both colleagues and patients. This is an example of patient information sharing:

> Several physicians shared research information with the patient. Often if they were going to have some kind of treatment, they said 'research shows that…'. I think it was so good, then the patient sits there knowing that the physician actually knows what's new, and that's so positive, because then I'm learning something new and the patient gets to know that the physician is keeping up-to-date. (N20, 2nd series)

The newcomers claim that when new situations arise on a ward, it is chaos and difficult to decide what to do. However, the newcomers explain that in such cases they have strategies for obtaining necessary information through formal sources and by consulting the hospital's resource staff on other wards. The newcomers reported that it is not common among the nurses to seek information across the wards, but they are able to do so since they know about several information resources in the hospital, having been themselves on different wards:

> N21: If I go to another ward and ask 'I have a problem, could you quickly show me?' That's no problem, people are very helpful.
> N24: Because you know the hospital better due to working 100 percent and having been on different wards so you get to know people, this makes it easier to ask.
> N21: Yes, because we know where to go to find the answers.
> N25: Many people don't dare to do that. (3rd series)

There was a change in the way the newcomers considered their contributions to sharing new information over the three focus group series. In the first series, they emphasised their ability to share "up-to-date professional and scientific information" with their new community. In the second series, they focused on having a "bridge-building role between the wards, attempting to justify, implement and teach" new information (recapped by N10 in 3rd series). As highlighted above, in the third series the newcomers felt very confident about information seeking in the hospital and attempted to share information with their colleagues about what information resources to seek across the hospital.

Information proactiveness: 'There will always be changes'

Information proactiveness involves a concern about how to use information, how to obtain new information and how to put useful information into action as response to changes, thus getting involved in managing innovation. Proactiveness is an approach, which combines the above five approaches. This means that proactiveness implies the use of accurate, formal information, to give feedback to people, being open about errors and finally sharing all this information across the organisation. A proactive approach improves organisational responsiveness to change and innovation in the healthcare domain. There were various experiences relating to proactiveness on the different wards. Some participants had very positive experiences as in this example:

> They are very good at professional development everywhere. I think, having lunchtime lectures and focusing more on that than they maybe did before. In this way it's possible to take part in the development processes. Professional development is very important. On my ward, even the physician was interested in the lunchtime lectures. (N2, 3rd series)

Another said that "The procedures we should use, have to be based on the latest information, and on my ward, they changed one of the procedures based on how other hospitals around the world do it and research findings" (N20, 2nd series).

Despite a lot of enthusiasm, several of the newcomers also reported certain negative attitudes towards new things as is highlighted in this example:

> I really noticed on my ward that there was considerable negativity regarding new procedures. As recent graduates, we are not used to how things were done before, it is all completely new to us, and then it's easier for us to introduce it [a new procedure] or to do something. We have to promote it in a positive way and make them understand that it isn't really a big change, and that we should do it to prevent any harm to our patients. (N4, 2nd series)

The newcomers used various strategies to try to influence the culture on their wards, in this case the argument was the patients' well-being. Another newcomer emphasised that "you encourage change by linking it to something positive" (N10, 2nd series) and a third one said that "You can change one person at a time. Maybe try to change the most responsive colleagues' attitudes at least" (N9, 3rd series). Another comment was that: "We don't have to change things immediately, but rather show them how they do it in other places and make them reflect on opportunities and alternative solutions" (N4, 3rd series). Moreover, the newcomers share information and are teaching their colleagues how to use new procedures and tools as previously documented.

The newcomers mention different strategies for keeping themselves abreast of new knowledge. As one nurse explained:

> Now I'm recently qualified, and it's time to ask questions. And, like you say, seek out learning opportunities. I will expose myself to situations. But you can't just ask about everything, I will also check the procedures. (N5, 1st series)

Some of the newcomers were concerned about using literature searching for skills from their education to update themselves:

> If you want new information, new knowledge, then you have a lot of experience from your training about knowing where to find it. (N8, 1st series)

> Having knowledge about critical appraisal, how to find research and being critical of it. I think those two things in the education are very important and really fun, because you know that you can find an answer to something you are wondering about or discuss it with someone. (N23, 1st series)

The newcomers claim that they often are the first to be aware of changes and often point them out to their colleagues. However, they believe that it should be a mutual learning process:

> There is no one who knows absolutely everything 110 percent, and there will always be changes. That's what happens in this field when something new happens. There is a new reform, or new legislation or a new procedure or something. Eventually, everything will be up-dated, and I think it is important to use and help each other to do our best. (N2, 1st series)

These examples show that in the first series the newcomers were very concerned about how to acquire information to handle their daily work, and they seemed to be somewhat optimistic about the opportunities they would get to do literature searches and be part of different situations on their wards. In the last series, they had experienced different challenges and approaches, and they were very concerned about how to change the information practices and approaches to information use on their wards.

Discussion

The aim of the current study was to investigate how a group of newcomers in a healthcare organisation experience and interact with professional information practices and organisational information culture, and how this interaction can lead to mutual transformation of newcomers as well as information practices and organisational culture. The findings reveal some contradictions in the newcomers' experiences about the approaches to information use in the hospital. The newcomers characterised the hospital information culture as preoccupied with the use of accurate formal and scientific information in line with Känsäkoski and Huotari (2016). Employees are encouraged by the management to be open about errors, to continuously share information between different actors and to be constantly involved with professional development. However, these statements that relate to information culture appear at times to be dislocated from what is said and done in practice according to the newcomers. Additionally, several different information practices seem to co-exist. The research data revealed a number of contradictions. Some nurses act in a different way to what they promote verbally and/or what is prescribed by formal information. Feedback on performance seems to be missing, which leads to less error reporting. Sometimes information shared by colleagues is inaccurate, and occasionally there is resistance to both changes and new information. In terms of Marchand and colleagues (2001), these challenges relate to different approaches to information use, starting with the information integrity as the basic dimension. In the present case, approaches concerning information control and transparency appear as particularly central to improving information proactiveness in the hospital. Proactive information culture is particularly important in the context of healthcare due to the continuous changes and innovations (cf. Curry and Moore, 2003).

Previous quantitative studies have provided information about what approaches to information use dominated in relation to a set of predefined information use outcomes in different kinds of organisations, but the studies have not been able to establish *why* various approaches were stronger than others (cf. Abrahamson and Goodman-Delahunty, 2013; Choo et al., 2008; Choo et al., 2006; Detlor et al., 2006). The framework of Marchand and colleagues (2001) seems to be fruitful in a case study like the current one in order to provide concrete information about needs for improvements to be able to face challenges and changes in the organisation. Additionally, new trends may be identified such as the use of scientific information and other epistemic information that seem to have gained a foothold in nursing practices. This is a new development from practices reported in previous research (e.g.

Johannisson and Sundin, 2007; Lloyd, 2009). Scientific information is commonly shared even with patients, as noted in some research (e.g. Hult et al., 2016). Despite the increasing value given to epistemic information in nursing practice, social and physical information are still essential in these professional practices (e.g. Lloyd, 2009; Lloyd and Somerville, 2006). However, development may entail a tighter integration between epistemic and social information. As the findings here indicate, there is a concern to share accurate formal information supplemented by observations, instruction videos and discussions with colleagues. A shared conviction seems to exist that finding, using and dissemination of reliable information ensures patients' well-being and safety. The common orientation towards scientific information may even have contributed to the increased equality between the health professions.

In line with previous research, the newcomers are renegotiating and passing on new knowledge to the community (e.g. Billett, 2014; Fuller et al., 2005; Hodkinson et al., 2004; Wenger 1998). The newcomers transfer knowledge from other contexts to the workplace, mainly from their educational background, but also from their different work experiences. They defend the use of formal information rather than moving away from it. This contradicts the findings by Lloyd (2009). Individual agency seems to be a prominent factor in the present findings (cf. Billett, 2014; Giddens, 1984); there are aspects of motivation, personality and integrity, which challenge the practices at the hospital. The newcomers take a proactive approach to seek and share information, to integrate it into the community (cf. Morrison, 1993; Paré and Le Maistre, 2006). The exchange of information seems to be a two-way process, which enables mutual learning in the workplace and increasingly equal relations between newcomers and experienced professionals. Moreover, the findings indicate an ongoing open negotiation between the organisational information culture, or at least its goals, and the professional information practices. The role of information is discussed on several occasions, which in itself is an aspect of a proactively oriented information culture.

Apart from proactive information culture, proactive newcomers may also influence practices, causing them to be reconsidered or revised (Paré and Le Maistre, 2006). Newcomers transfer information practices from the educational context, which may lead to 'recomposition' of information practices at the workplace (cf. Schatzki, 2002) or a change in 'rules' or use of resources (cf. Giddens, 1984) when accommodating an information need. The newcomers' personal experiences challenge the socially defined competence of the community (cf. Wenger, 1998). According to Shove and colleagues (2012), practices change due to changes in materials, competencies and meanings. In this case, the newcomers bring new competencies in the form of research skills and 'know-how': they are able to seek, use and share scientific information. They bring new meanings in the form of motivation and integrity to use and share formal, scientific information, and this is justified by a strong, shared goal for the profession, of the patients' well-being. The material aspect may include information technology such as the availability of research databases and other information systems and tools. However, as indicated in the findings, there is also resistence to these changes for different reasons. Implementation of new ways of working may be stressful. Some nurses may hesitate in some situations, because of the risk of misconduct due to not being up-to-date. Moreover, always conferring with procedures may appear an inefficient way of working compared to acting on experience. Finally, patients are different, and acting according to the best knowledge may not always lead to the optimal outcome for the specific patient.

Methodological limitations

This study provides a relatively limited view of information culture in one organisation. Only one aspect of information culture is examined: that of approaches to information use. These approaches are experienced by new nurses on a few different wards in only one hospital. Additionally, information culture differs between the wards and over time. Even if the interview material about new nurses' experiences are supplemented by observations, these were mainly made within the training programme and not during the daily practice on different wards, and other perspectives are missing. The findings cannot be considered representative for nursing practice in general, because the context is a specific training programme in a country with relatively equal relations within and between professions. Moreover, the nurses involved in the study are participating in an elite initiative within the hospital and this is likely to affect both their self-esteem and how they are regarded by others.

Conclusion

This work sheds new light on newcomers' information use, as they integrate into a workplace and interact with information practices and organisational approaches to information use. Perhaps the most significant contributions are the development of newcomers' perspectives over time and the identification of the dynamics between the three agencies; individual agency in the form of the newcomers, social agency in the form of the existing information practices and organisational agency in the form of the information culture. The dynamics and mechanisms that are at work are merely outlined in the present paper, but at the same time there is clear evidence of the interdependencies. This highlights that an understanding of the role of information in workplaces remains always limited when only one agency is focused on in research of material and intellectual instances of information use. These findings call for further more longitudinal and holistic empirical and theoretical research in the field of workplace information. This research indicates that there is a need in information studies to develop models and theories that explicitly measure both individual and social agency.

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