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Making the Key Elements of Palliative Care Practice Visible to Inform for the Development of Interprofessional Scenario-Based Simulations in Undergraduate Health Professions Education

Bas de Leng[1], Florian Bernhardt[2], Philipp Lenz[2], Friedrich Pawelka[1], Juliane Schopf[1]

[1]Educational Institute (IfAS), Faculty of Medicine, University of Münster, Münster, Germany
[2]Central Palliative Care Centre, Academic Medical Hospital Münster, Münster, Germany
Email: bdeleng@uni-muenster.de

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Abstract

Current undergraduate skills lab programmes in health professions education demonstrate an absence of interprofessional training, particularly with regard to comprehensive patient care and collaboration between primary and specialist care. The ACTIVATE project addresses this issue by developing interprofessional simulation scenarios for home and palliative care. The project aims to provide students with the opportunity to engage socially and intellectually with students from other profession. It should enable them to experiment with challenges that require the application of general knowledge and social and communication skills in a safe environment. Post-event debriefings should focus less on instrumental, direct solutions and more on "problematizing" and "sensemaking", unlike traditional skills training debriefings. Cultural-Historical Activity Theory (CHAT) was used as a lens to identify data of interest for the design of simulation-based scenarios and for debriefing conversations. The six elements of an activity system—"Subject", "Object", "Community", "Tools", "Rules" and "Division of labour"—were used as overarching codes to identify and label critical incident reports of palliative care cases, as well as academic papers that used qualitative research methods to describe interprofessional collaboration in palliative care. Qualitative data analysis using a combination of deductive and inductive coding revealed 172 codes representing the elements of an activity system. The coding scheme's structure and the collection of related, authentic data emphasised aspects of interprofessional collaboration that could be incorporated into palliative care simulations and discussed during

subsequent debriefing sessions. In the ACTIVATE project, the codes and their associated texts were useful for communicating with the team responsible for developing interprofessional skills training. Such training provides an overview of complex, collaborative and dynamic systems, establishing a foundation for crossing professional boundaries.

Keywords

Interprofessional Collaboration, Health Professions Education, Scenario-Based Simulations Palliative Care, Skills Training

1. Introduction

An ageing population and the associated increase in the prevalence of long-term chronic diseases and multimorbidity require new models of healthcare delivery with a collaborative approach in multi-professional teams. In this context, interprofessional (IP) collaboration in primary care is certainly as important as the conventional teamwork we know from operating theatres or intensive care units. In latter clinical settings, dedicated, co-located teams use standard procedures with clearly defined roles. In a community setting, however, collaboration is more likely to take place in flexible teams that need to integrate the personalised care and that may be distributed across care sectors (Thistlethwaite, 2012).

Despite this societal need for new forms of healthcare delivery, interprofessional skills training in healthcare still focuses on the acquisition of clinical procedural skills in inpatient settings. This is often delivered in the form of simulation-based learning designed to mimic the clinical environment using high-fidelity manikins to simulate the physiological state of patients. Alongside such high-end skills training centres for hospital staff, less advanced skills labs are now routinely used in undergraduate health professions education, where the focus is more on training individual students in medical practical skills on simpler manikins, or general physical examination and communication skills in scenarios presented by simulated patients, who portray a specific role character.

However, interprofessional training in undergraduate health professions education in which for instance, medical students work together with students from nursing, pharmacy or physiotherapy is the exception. This is not surprising given that the different health professions are currently trained in relative isolation from each other and do rarely meet in practice until after graduation. Nor does it help that medical curricula are still generally focused on disease-centred, specialist perspectives rather than on comprehensive patient care and collaboration between primary and specialist care (Engeström & Pyörälä, 2021).

If we follow the logic that learning together will improve future collaboration, this lack of training in interprofessional collaboration in current undergraduate skills lab programmes is a huge missed opportunity. This recognition, shared by several health and technical education institutions in Europe, has led them to form

a strategic partnership under an ERASMUS+ grant program to develop scenarios for interprofessional simulations in home and palliative care. The aim is to give health care students already during their studies opportunities to learn with, about and from each other and to experience what it means to work together to provide patient-centered care in a community setting.

To this end, the strategic partnership, through its ACTIVATE project (E-Learning Competence Center, 2025), aims to provide a safe space for students in simulations to experiment with challenges that require the application of more general knowledge as well as social/communicative skills and professional identity formation. That demands adaptability, attunement, and management of interprofessional tensions (Fenwick & Dahlgren, 2015). To promote learning in team training, much attention is often paid to post-event debriefing, where participants reflect on their experiences during the simulation (Jossberger, Breckwoldt, & Gruber, 2022). The ACTIVATE project aims to go beyond the instrumental, direct closure solutions of traditional skills training debriefings and pay more attention to "problematizing" and "sensemaking", including value orientations such as ethical (morality), political (power) and transcendental (meaning) that will invite uncertainties, ambiguities and paradoxes (Qureshi, 2021).

Such interprofessional simulations should not only approximate palliative care practice, but also include elements that carry a potential for tension and conflict between the different professions involved, which can be discussed in the debriefing after the event. To ensure that the conversation between the participants takes place in a best possible way, the debriefing needs to be structured with an optimal balance between self-regulation of the learners and external regulation by facilitators and teaching tools (Vermunt, 2023).

1.1. Designing Simulation Scenarios and Post-Event Debriefing

Through interprofessional skills training, the ACTIVATE project aims to engage students socially and intellectually with students from other professions, using the policies, rules, understandings, values and equipment of their respective cultures. Cultural-Historical Activity Theory (CHAT) (Engeström & Pyörälä, 2021) is an ideal framework for describing how conceptual and material tools mediate people's interactions with their environment.

CHAT embraces the perspectives of socio-material and socio-cultural theories. Like distributed cognition or complexity theory, it recognises that knowledge is practical, embodied and social. It does not exist solely in the mind as something to be transmitted from one person to another (Boyle, Walters, Jamieson & Durning, 2023; Qureshi, 2021). Similar to situated learning theories, CHAT recognises that competencies are learned by participation in social practices, including the associated conventions, division of labour, and tools (Engeström, 1987).

CHAT has already been used by scholars to analyse interprofessional learning and practice (Engeström, 2001; Kajamaa, Lahtinen, Mattick & Bethune, 2024; Lim, 2019; Lingard et al., 2012; Reid, Ledger, Kilminster & Fuller, 2015) and to

inform simulation-based learning (Fenwick & Dahlgren, 2015; Gormley, Kajamaa, Conn & O'Hare, 2020). Therefore, the CHAT framework is used in the ACTIVATE project to design the simulation scenarios and to structure the debriefing after the event.

For the simulation scenarios, CHAT can help to find authentic socio-material data from palliative care practice that can be used to prefigure the scenarios, thus orchestrating challenges and enabling activities that may lead to tensions and conflicts. For the post-event debriefing, CHAT can provide a structure to reflect on how and why an "activity system" (see section Cultural-Historical Activity Theory) occurs in its current form, and how it might be changed in the future to overcome tensions or contradictions within the system (Engeström & Sannino, 2012; Qureshi, 2021).

The ultimate goal is that such innovative interprofessional skills training will teach students new ways of working together (Engeström & Sannino, 2012; Qureshi, 2021), and this may include unlearning traditional patterns of interaction and relationship through which professions maintain their knowledge and practice boundaries (O'Brien et al., 2017).

1.2. Cultural-Historical Activity Theory

The basic unit of analysis in CHAT is an "activity system" placing human action in a meaningful context. An activity system is graphically represented by a triangle diagram with the three main elements as its sides (see **Figure 1**): the "Subject" (actors in the activity e.g. healthcare providers), the "Object" (product acted on e.g. patient) and the "Community" (social cultural context in which the activity takes place). The "Object" is the long-term purpose of the activity, the reason why people are participating in an activity and holds all elements together in a bounded activity. Activities are essentially object-oriented and collectively focused, but subjects may have different conceptualisations of the "Object" (Chaiklin, 2011).

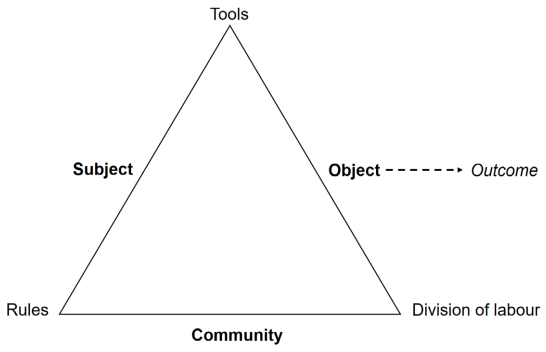

Figure 1. An activity system shown as a triangle diagram.

"Subject", "Object" and "Community" are interrelated by three other elements that form the corners of the triangle: "Tools", "Rules" and "Division of labour". The "Tools" mediate the relationship between the "Subject" and the "Object": the "Subject" acts on the "Object" indirectly, mediated by the use of instruments. The

"Rules" mediate the relationship between the "Subject" and the "Community", and the "Division of labour" mediates the relationship between the "Community" and the "Object" (Engeström, 1987).

Looking through such a CHAT lens, material elements of practice such as spatial arrangements, technology, forms and checklists, etc. are not mere backdrops in interprofessional collaboration. They are intricately entangled with it and influence how interprofessional collaboration is enacted (Burm et al., 2019). The "Subject" is part of a "Community" with "Rules" and "Division of labour" shaped by cultural expectations and CHAT emphasises that many social voices are in dialogue with one another, and each part of the activity system influences the others (Qureshi, 2021).

2. Methods

In order to identify authentic socio-material data from palliative care practice, two sources of information were analysed: 1) a database of critical incident reports of palliative care cases (CIRSmedical.de) and 2) a collection of academic papers using qualitative research methods such as interviews and focus groups to describe interprofessional collaboration in palliative care.

Information about critical incidents (i.e. examples of particularly strong or weak performance on the constructs of interest) was used because this has been found to be a valuable technique for capturing realistic work situations for use in Situational Judgment Tests (SJTs), a testing method that uses realistic work-related scenarios for assessment (Reed, Smith, Robinson, Haines & Farland, 2022).

For the academic papers experienced palliative care physicians were invited to provide literature describing realistic working situations of IP collaboration in palliative care. As the aim was not to conduct a comprehensive literature review, but to obtain sufficiently rich material for training scenarios and debriefing topics, and as detailed content analysis of such articles is very laborious, priority was given to articles that were most likely to provide valuable information. The PRISMA criteria (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) were used as a basis for this selection process (Moher, Liberati, Tetzlaff & Altman, 2009). Two researchers (BdL, JS) screened the titles and abstracts of the provided articles independently, using the following criteria:

a) Inclusion criteria:

- Type of publication: academic papers using qualitative or mixed research methods.
- A focus on palliative care or end-of-life care practice.
- A focus on interprofessional teams: different professions working collaboratively; and

b) Exclusion criteria:

- Intra-professional team: different specialties within a single profession.
- Multidisciplinary team: different professions working separately.
- Acute care setting.

- Interprofessional education.

The full texts of eligible articles were then read and analysed independently by BdL and JS. The main inclusion criterion for this full-text review was that the results section of the article contained substantial narrative data from different health care providers about collaboration in practice.

The final step was not to extract data from the included articles as in systematic reviews, but to analyse their content in more detail. CHAT was used as a lens to identify data of interest for the design of the simulation-based scenarios and for the debriefing conversations. The six elements of an activity system: "Subject", "Object", "Community", "Tools", "Rules" and "Division of labour", were used as overarching codes to identify and label texts from the critical incident reports and from the quotes from the interviews and focus groups presented in the publications.

In addition to this initial deductive coding, finer-grained subcodes were defined through inductive coding. BdL developed an initial coding scheme based on the CIRS database and a third of the articles. During this development, BdL and JS met several times to discuss the coding strategy, to develop mutual understanding and consensus on the emerging codes, to fine-tune the hierarchy of the coding tree, and to ensure that their insights were truly derived from the data. Once a final coding scheme was agreed, BdL and JS continued to code the remainder of the data, using the agreed coding scheme while remaining open to new, emerging codes. Articles were coded until analytical saturation was reached, i.e. coding more articles did not lead to more insights, themes and codes.

Covidence systematic review software was used to streamline the process of prioritising articles, and NVivo qualitative data analysis software was used for initial deductive coding and further inductive coding.

3. Results

3.1. Analysis of Palliative Care Critical Incident Reports

An existing Critical Incident Reporting System (CIRSmedical.de) and a recently established specific "CIRS-Palliative" database, which is a joint initiative of the German Society for Palliative Medicine (DGP) and the German Medical Association (BÄK) to report safety-relevant incidents in all areas of palliative care, were used. The CIRSmedical online system is accessible worldwide and free of charge and all reports are checked and anonymised by authorised staff of the German Medical Association before being published on the website.

The "CIRSmedical.de" database contained 11,471 cases, of which 5 related to palliative care and the specific "CIRS-Palliative" database contained a further 5 cases (access date 15.1.2025). Deductive coding with the elements of an activity system was able to place the information from the 10 CIRS cases in a meaningful context, where the codes "Subject", "Object" and "Community" grouped the data into categories respectively for: actor in the activity, product acted on and socio-cultural context of the activity (Table 1). Inductive coding identified several subcodes for "Rules" that mediate the relationship between "Subject" and "Community" and

for "Tools" that mediate the relationship between "Subject" and "Object" (Table 2).

3.2. Analysis of Research Papers on Interprofessional Collaboration in Palliative Care

The initial screening of titles and abstracts of the 38 articles on IP collaboration in palliative care excluded 7 studies based on the formulated inclusion and exclusion criteria. The screening of the full texts of the eligible articles excluded a further 12 studies because they didn't contain sufficient narrative data from different health care providers about collaboration in practice for a final content analysis with coding.

Table 1. Deductive codes with the information categorised in the CIRS cases.

Deductive codes	Data from the CIRS cases (n = 10)
Subject	physicians (palliative care and general medicine), nurses, carers and family members
Object	4 males, 3 females and 3 of unspecified gender with pain or delirium
Community	2 home environments, 2 nursing homes, 4 hospitals, 1 hospice, 1 not reported.

Table 2. First and second level subcodes identified by inductive coding for "Rules" and "Tools".

Deductive codes	Inductive subcodes	
	Level 1	*Level* 2
Rules	Communication	
	Construction	
	Consultation	
	Deliver Substance	
	Organisation	Labelling artifacts
	Timing and timeliness	
Tools	Communication	Documentation, Email, Telephone
	Devices	Delivery, Monitoring
	Education and preparation	
	Medication	
	Methods to act	Delivery, Checking
	Work format	Rounds
Devision of Labour	-	-

Content Analysis

Inductive coding of the content of 7 of the remaining 19 articles was used to extend the initial subcodes based on the CIRS reports to a coding scheme with a sufficient degree of saturation to cover the topic of IP collaboration in palliative care. In an iterative proces BdL and JS developed a mutual understanding and consensus on the emerging codes and fine-tuned the hierarchy of the coding tree.

A total of 172 codes were identified for the six elements of an activity system, 28 at the highest level of the hierarchy and 98, 41 and 5 subcodes respectively at the three successive levels of increasing granularity. Table 3 shows the codes relating to "Subject", "Object", "Community", "Tools", "Rules" and "Division of labour" at the two highest levels of the hierarchy.

In the analysed articles, fragments of text of interest were assigned multiple codes to label and characterise all elements of an activity system in a holistic manner, using complementary subcodes. The NVivo software then enables you to calculate how often codes are assigned to the analysed articles, and compile a list of all text fragments assigned a specific code. The frequency with which codes are assigned to the analysed articles is shown in **Appendix**. Table 4 provides examples of quotes for the "Object", "Tools" and "Rules" codes.

Table 3. Codes relating to "Subject", "Object", "Community", "Tools", "Rules", and "Division of la-bour" at the two highest levels of the hierarchy

Subject	IP team	-
	Medical practitioners	Generalist
		Specialist
	Other Healthcare professionals	Care staff
		Dietrician
		Nurse
		Physiotherapist
		Psychologist
		Social worker
		Spiritual carer
	Perceptions	Emotions
		Incompetence
		Trust
		Unconfortable
		Unsuccesful
		Unsure
	Relatives	-
Object	Action	Decisionmaking
		Delivering care
		Delivering prognoses
		End of Life conversation
		Needs assessment
		Transfer

Continued

	Goal	Care
		Cure
		Sign and symptoms
	Patient profile	Age
		Cultural background
		Foreign language
		Gender
		Informedness
		Known or unknown
		Pre-existing complexity
		Rejecting
		Stigmatised
	Relatives	Dissonance
Community	Circumstances	Complexity
		Distance
		Immediate needs
		Shortage
	Culture	Appreciation
		Conception
		Habitual practice
	Personal choices	Career choice
	Setting	Home
		Hospice
		Hospital
		Nursing home
Tools (act on Object)	Attitude	Arrogance
		Awareness
		Conviction
		Discussion of own views
		Personal priority
	Communication	Implementation
		Means
	Competence	Coaching
		Training
	Devices	Delivery
		Monitoring
	Education and preparation	-
	Medication	-

Continued

	Methods to act	Appraisal
		Checking
		Decision making
		Delivery
		Sharing
	Shared information	-
	Work format	Formal
		Informal
Rules (act on Community)	Action	Communication
		Coordination
		Deliver
		Time allocation
		Timing and timeliness
	Interaction	Awareness
		Connectedness
		Construction
		Consultation
		Context information
		Interruption
		Negotiate
		Proaktive
		Role
		Team
		Understanding
	Organisation	Co-location
		Labelling artifacts
		Scheduling
		Stock
Division of labour	Handling tasks	Delegate, explicit transfer
		Leaving, implicit defer
		Perception of importance
	Regulations	Hierarchy
		Financial Aspects
		Responsibility
		Territorial attitute
	Feelings	Interest
		Trust

Table 4. Examples of quotes for the "Object", "Tools" and "Rules" codes.

Activity System Element	Code and subcode	Theme and text fragment in the article
Object	Patient profile\ Pre-existing complexity	Complexity before receiving palliative care; single mother (Pask, 2018)"… she has to look after her kids, so she hasn't got her husband with her any longer. So, forget about the complexity of her illness, the complexity of just normal life is much higher" (social worker)
Object	Patient profile\ Stigmatised	Stigmatised diseases (Pask, 2018) "I do think there are some diseases that make it more socially complex, or potentially more socially complex. So (…) liver cancer being associated with hepatitis B, which was more associated with intravenous drug users, triggers a different reaction in their social set. You know, in the family, in the friends, in the professionals sometimes even, which makes the whole situation more complex to manage." (care manager)
Tools (act on Object)	Communication\ Means\Tele-phone	Phone calls (Johansen, 2022) "Mostly, I find that when I call the hospital (…), we can have a dialogue around the patient and a discussion, so we reach a common solution (…). We have different expertise. I'm a specialist in general practice, I might be talking to a cancer specialist. (…) And then I'm the one who knows the patient best. And then the oncologist knows his subject best, you see. So, then we can meet halfway and say, hey, this works, or this doesn't work. (…)" (general practitioner)
Tools (act on Object)	Education and preparation	Providing information to patients and families (Seow, 2020) "Education is a big part of crisis management. I always try to educate so patient and family know what to expect and not to panic…Most importantly I set up early supports for families so they have a plan." (specialist nurse)
Rules (act on Community)	Interaction\Con-text information	Context information during transfer (Mertens, 2021) Upon hospital discharge, GPs reported a lack of psychosocial information, and it was unclear what information had been given to the patient during hospitalization. Community nurses received the discharge medication overview but also indicated a shortage of additional information regarding hospitalization.

4. Discussion

Using CHAT as a lens through which to view texts of scientific papers describing authentic interprofessional collaboration in palliative care made themes present in the socio-material data visible and tangible for designers to develop interprofessional, scenario-based simulations for health professions education. The deductive and inductive coding of text fragments from interviews and focus groups in the articles resulted in a coding scheme that provided insight into essential conceptual aspects of palliative care practice. It gives instructional designers ideas on how to create realistic scenarios that "zoom out" from an individual perspective to gain a more comprehensive view of complex, collaborative and dynamic systems.

This touches on the social cognitive theory of distributed cognition, which broadens the view of cognition beyond a single person's mind. It makes us realise that cognition is embodied and situated within a context, encouraging us to "zoom out" and consider the entire system of which we are a part, where the effectiveness of outcomes depends on the overall functioning of the system (Durning & Artino, 2011). This is clearly the case for interprofessional healthcare teams, in which tasks are divided among health professionals with different individual and shared knowledge, who interact dynamically, interdependently, and adaptively towards a common goal (Boyle, Walters, Jamieson & Durning, 2023). From this perspective, cognitive processes are considered to be distributed in three ways: socially, between the members of a group; materially, between internal (tacit, i.e. inside the mind) and external (explicit, e.g. in a patient record) representations; and temporally, in that the products of earlier events can transform the nature of later events (Hollan, Hutchins, & Kirsh, 2000).

More specifically, instructional designers can use the coding scheme as a container for content in pre-programming simulation scenarios, filling the containers with linked detailed practice descriptions. In this way, the structure and collection of related, authentic data highlight important aspects of IP collaboration that should be included in palliative care simulations, providing interesting themes for subsequent discussion. In the ACTIVATE project, the codebook exported from NVivo, along with the associated texts, was indeed very useful for communicating with the team responsible for developing the simulation scenarios.

The ACTIVATE project aims to provide in interprofessional skills training that engages students, socially and intellectually with students from other professions, using the policies, rules, understandings, values and equipment of their respective cultures. The idea is that the current healthcare landscape comprises professional communities divided by boundaries of role, power, hierarchy and professional culture (Hall, 2005), and that aforementioned interprofessional skills training eases the transition to collaborative practice by establishing a basis for crossing boundaries (van Duin & de Carvalho Filho, 2022).

Adopting CHAT (Engeström & Pyörälä, 2021) as our framework allowed us to identify the key elements of palliative care practice for the design of interprofes-

sional, scenario-based simulations. These simulations should enable undergraduate students to explore how different perspectives can result in interprofessional conflicts and disagreements. Following the design phase, the next steps in the ACTIVATE project will be to construct a series of simulations for the palliative care context, develop guides and training for students and supervisors, and set up debriefing sessions. The codebook exported from NVivo, along with the associated texts, has already proven useful in communicating with the team responsible for developing the simulation scenarios.

The CHAT approach, which treats the "activity system" as the basic unit of analysis, has also fuelled the development of a digital debriefing dashboard that visualises elements of organisational activity and their complex interrelationships graphically. Such a digital tool should facilitate discussion, negotiation and integration of diverse viewpoints during the debriefing process.

In the development phase of the project, the intermediate products will undergo usability testing and evaluation by students and educators. Finally, it is important to examine pilot implementations because the success of a well-designed programme depends on the quality of its implementation. Although the aim of health professions education is to prepare students to work in healthcare systems characterised by ambiguous, non-linear and emergent interactions between people, objects and events, it is clear that one-off undergraduate simulation-based training sessions cannot provide the context for the long-term, expansive team learning where work and learning are inextricably linked (Engeström, 2001).

However, we expect these simulation-based training sessions to make students aware that learning is embedded in the dynamic relationships between people and their physical environments. We also anticipate that they will experience processes that cross boundaries, such as seeking, recognising, appreciating and exploiting the differences in perspectives that arise when different practices meet (Akkerman & Bakker, 2011). These will therefore be the learning outcomes that we will want to measure when we pilot the simulation-based training courses in future.

The limitations of this study can be divided into two categories: those related to the sources of information analysed, and those related to the content analysis itself. Although we analysed reports and academic papers containing first-hand accounts of the interprofessional experiences of people working in palliative care, we did not collect these experiences through interviews and surveys ourselves. Therefore, we intend to expand our analysis in future to include accounts of such experiences collected through surveys, interviews, and *in-situ* simulations in practitioners' authentic working environments. In addition, the collection academic papers was limited in size and influenced by the palliative care experts who provided it. Given that the purpose of this study was not to conduct a comprehensive literature review, but rather to obtain sufficient material for training scenarios and debriefing topics, and that the small number of articles reached analytical saturation for the coding scheme and provided ample themes for constructing simula-

tion scenarios, we do not consider this to be a problem within the scope of our project.

Although a systematic approach with PRISMA criteria was applied during the selection of the articles and a robust content analysis was conducted with a coding scheme developed through an intensive iterative process by two researchers experienced in qualitative data analysis using NVivo analysis software, the unravelling of the sociomaterial elements of interprofessional collaboration remains interpretative and is therefore subjective. Those working in similar healthcare settings may identify additional sociomaterial elements.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix

Frequency of Coded Text Fragments for Activity System Elements including Subcodes

	Level 1	Level 2	Bennardi,M. et al. (2021)	Bennardi,M. et al. (2022)	Brueckner, T. et al. (2009)	Carter, C. et al. (2023)	DeMiglio, L. & Williams, A. (2012)	Den Herder-van Der Eerden, M. et al. (2018)	Gardiner, C. et al. (2012)	Ho, A. et al. (2016)	Johansen, M.-L. & Ervik, B. (2022)	Kesonen, P. et al. (2022)	Klarare, A. et al. (2013)	Mason, B. et al. (2013)	Mertens, F. et al. (2019)	Mertens, F. et al. (2021)	Pask, S. et al. (2018)	Pype, P. et al. (2013)	Seow, H. et al. (2020)	Suslow, A. et al. (2023)	Zwarenstein, M. et al. (2013)
Subjects			**14**	**12**	**7**	**10**	**2**	**8**	**3**	**23**	**8**	**5**	**7**	**3**	**14**	**14**	**11**	**12**	**6**	**2**	**2**
	IP team		1	-	1	-	-	-	-	2	-	-	3	-	-	5	4	-	2	-	-
	Medical practitioners		10	7	6	2	-	5	2	18	8	3	2	1	12	11	5	4	2	1	1
		Generalist	5	2	5	-	-	3	1	1	5	-	-	1	12	6	-	4	1	1	-
		Specialist	8	5	-	-	-	-	-	10	4	-	-	-	-	7	5	-	2	-	-
	Other Healthcare professionals		3	3	-	8	2	3	2	8	5	3	4	2	5	8	2	5	2	1	1
		Care staff	-	-	-	-	-	-	-	1	1	-	-	-	-	1	-	-	-	-	-
		Dietrician	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
		Nurse	3	-	-	5	1	1	2	4	4	2	4	2	5	7	-	5	2	1	1
		Physiotherapist	-	-	-	1	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-
		Psychologist	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
		Social worker	-	1	-	1	1	-	-	1	-	-	1	-	-	2	2	-	-	-	-
		Spiritual carer	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Perceptions		-	2	-	-	-	1	-	9	-	-	-	-	5	-	-	-	-	-	-
		Emotions	-	-	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-
		Incompetence	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-
		Trust	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
		Unconfortable	-	-	-	-	-	-	-	4	-	-	-	-	2	-	-	-	-	-	-
		Unsuccesful	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
		Unsure	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
	Relatives		3	-	-	-	-	1	-	-	-	-	-	-	-	-	-	5	1	-	-
Object			**1**	**3**	**7**	**5**	**2**	**2**	**1**	**20**	**8**	**2**	**2**	**1**	**1**	**8**	**11**	**1**	**5**	**-**	**-**
	Action		-	-	-	2	-	1	-	18	8	-	1	1	1	7	11	-	5	-	-
		Decisionmaking	-	-	-	2	-	-	-	2	-	-	1	-	1	1	3	-	-	-	-
		Delivering care	-	-	-	-	-	-	-	-	4	-	-	-	-	5	8	-	5	-	-
		Delivering prognoses	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-
		End of Life conversation	-	-	-	-	-	-	-	16	-	-	-	1	-	-	-	-	-	-	-
		Needs assessment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-
		Transfer	-	-	-	-	-	1	-	-	4	-	-	-	-	-	-	-	-	-	-
	Goal		1	3	3	3	2	1	1	3	1	2	1	1	-	3	3	1	3	-	-
		Care	-	2	-	1	2	1	-	-	-	-	1	1	-	-	-	-	-	-	-
		Cure	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-
		Sign and symptoms	-	-	1	-	-	-	1	1	1	1	-	-	-	3	-	1	3	-	-
	Patient profile		-	-	6	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-
		Age	-	-	3	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
		Cultural background	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Foreign language	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
		Gender	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Informedness	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
		Known or unknown	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Pre-existing complexity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
		Rejecting	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
		Stigmatised	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
	Relatives		-	-	2	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-
		Dissonance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Community			**-**	**3**	**3**	**3**	**1**	**8**	**1**	**7**	**6**	**1**	**1**	**3**	**2**	**16**	**11**	**5**	**7**	**1**	**-**
	Circumstances		-	-	-	-	-	-	-	-	4	-	-	-	-	-	11	-	-	-	-
		Complexity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-
		Distance	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
		Immediate needs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
		Shortage	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
	Culture		-	3	2	1	-	1	-	6	-	1	-	-	2	-	-	1	1	-	-
		Appreciate	-	-	-	-	-	-	-	-	-	1	-	-	2	-	-	1	-	-	-
		Conception	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Habitual practice	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Personal choices		-	-	-	2	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-
		Career choice	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-
	Setting		-	-	1	-	-	7	1	-	6	-	1	3	-	16	10	4	7	1	-
		Home	-	-	-	-	-	3	-	-	4	-	1	1	-	1	2	3	7	1	-
		Hospice	-	-	-	-	-	2	1	-	-	-	-	1	-	-	-	-	-	-	-
		Hospital	-	-	-	-	-	4	-	-	1	-	1	1	-	13	8	1	-	-	-
		Nursing home	-	-	1	-	-	1	-	-	1	-	-	-	-	3	-	1	-	-	-

	Level 2	Level 3	Bennardi,M. et al. (2021)	Bennardi,M. et al. (2022)	Brueckner, T. et al. (2009)	Carter, C. et al. (2023)	DeMiglio, L. & Williams, A. (2012)	Den Herder-van Der Eerden, M. et al. (2018	Gardiner, C. et al. (2012)	Ho, A. et al. (2016)	Johansen, M.-L. & Ervik, B. (2022)	Kesonen, P. et al. (2022)	Klarare, A. et al. (2013)	Mason, B. et al. (2013)	Mertens, F. et al. (2019)	Mertens, F. et al. (2021)	Pask, S. et al. (2018)	Pype, P. et al. (2013)	Seow, H. et al. (2020)	Suslow, A. et al. (2023)	Zwarenstein, M. et al. (2013)
Division of Labour			**-**	**11**	**9**	**9**	**8**	**3**	**-**	**10**	**-**	**2**	**4**	**1**	**8**	**3**	**-**	**6**	**1**	**2**	**-**
	Handling tasks		-	1	-	2	-	-	-	5	-	-	-	-	-	-	-	-	-	1	-
		Delegate, explicit transfer	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	1	-
		Leaving, implicit defer	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
		Perception of importance	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
	Regulations		-	3	7	5	8	2	-	7	-	-	2	-	5	2	-	5	1	-	-
		Hierarchy	-	1	-	3	1	-	-	-	-	-	2	-	5	1	-	-	1	-	-
		Financial Aspects	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Responsibility	-	1	-	1	3	2	-	7	-	-	-	-	1	1	-	5	-	-	-
		Territorial attitute	-	2	1	2	5	-	-	-	-	-	-	-	1	-	-	-	-	-	-
	Feelings		-	4	2	-	2	1	-	-	-	2	2	1	-	-	-	1	-	1	-
		Interest	-	2	-	-	1	-	-	-	-	1	-	1	-	-	-	1	-	-	-
		Trust	-	2	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	1	-
Rules (act on Community)			**8**	**3**	**3**	**11**	**4**	**10**	**-**	**5**	**8**	**2**	**3**	**2**	**9**	**11**	**2**	**3**	**5**	**-**	**3**
	Action		-	1	2	9	3	6	-	3	5	1	1	2	6	6	2	1	3	-	2
		Communication	-	1	1	3	1	1	-	-	3	1	-	1	4	-	1	1	1	-	2
		Coordination	-	-	-	-	-	1	-	3	3	-	-	-	-	3	-	-	-	-	-
		Deliver	-	-	-	-	-	1	-	-	-	-	-	-	1	1	-	-	1	-	-
		Time allocation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Timing and timeliness	-	-	1	7	2	3	-	-	1	-	1	1	1	4	1	-	1	-	-
	Interaction		7	2	1	2	1	4	-	3	5	1	2	-	4	6	1	2	3	-	1
		Awareness	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
		Connectedness	1	-	-	-	-	2	-	1	-	-	-	-	2	-	-	-	2	-	-
		Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Consultation	2	-	-	-	-	1	-	-	3	-	-	-	-	2	-	-	-	-	-
		Context information	-	-	-	-	-	-	-	-	1	-	-	-	-	4	-	-	-	-	-
		Interruption	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Negotiate	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
		Proaktive	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
		Role	2	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
		Team	-	-	1	-	1	1	-	1	-	1	2	-	1	-	-	2	-	-	-
		Understanding	1	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-
	Organisation		1	-	-	-	-	-	-	-	3	-	-	-	1	1	-	-	1	-	-
		Co-location	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
		Labelling artifacts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Scheduling	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
		Stock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Tools (act on Object)			**12**	**18**	**7**	**6**	**6**	**11**	**3**	**8**	**6**	**2**	**3**	**2**	**9**	**14**	**2**	**10**	**3**	**3**	**3**
	Attitude		3	9	3	5	2	1	-	-	-	1	2	-	5	3	-	2	-	-	-
		Arrogance	1	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
		Awareness	-	-	-	-	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-
		Conviction	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
		Discussion of own views	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Personal priority	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
	Communication		9	2	2	3	1	8	-	6	6	-	1	2	5	10	-	4	1	2	-
		Implementation	6	-	-	-	-	1	-	6	1	-	-	-	-	3	-	1	-	-	-
		Means	5	-	2	-	1	5	-	-	6	-	-	2	1	8	-	3	1	2	-
	Competence		-	4	2	1	2	1	3	1	-	-	-	-	-	-	-	5	-	-	1
		Coaching	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
		Training	-	4	-	-	1	1	2	1	-	-	-	-	-	-	-	3	-	-	-
	Devices		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Delivery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Monitoring	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Education and preparation		-	4	-	-	-	1	-	-	-	1	-	-	-	-	-	-	2	-	-
	Medication		-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	1	-	-	-
	Methods to act		3	-	-	-	-	-	-	-	1	-	-	-	1	2	2	-	-	-	-
		Appraisal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
		Checking	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
		Decision making	1	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
		Delivery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Sharing	2	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-
	Shared information		-	-	-	-	1	1	-	1	-	-	-	-	-	2	-	-	-	-	2
	Work format		-	-	-	1	-	1	-	-	-	-	-	-	-	3	-	-	-	1	-
		Formal	-	-	-	-	-	1	-	-	-	-	-	-	-	3	-	-	-	-	-
		Informal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-

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