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To cite this article: Irene J. M. Muller-Schoof, Miranda Snoeren, Marjolein E. A. Verbiest & Katrien G. Luijkx (2024) Evaluation of an interprofessional educational program in nursing home practice: a mixed methods multiple-case study, *Journal of Interprofessional Care*, 38:6, 1081-1091, DOI: [10.1080/13561820.2024.2395966](https://doi.org/10.1080/13561820.2024.2395966)

To link to this article: <https://doi.org/10.1080/13561820.2024.2395966>



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Evaluation of an interprofessional educational program in nursing home practice: a mixed methods multiple-case study

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ABSTRACT

Research has shown that interprofessional collaboration (IPC) and education (IPE) may potentially lead to better care for residents in nursing homes, but their implementation is challenging. This study evaluates the implementation of a co-designed IPE program and investigates what and how healthcare students learn and what factors influence their learning. A mixed-methods approach was used to evaluate three cases, with student participation in the IPE ($n = 72$). The study comprised pre- and posttests, focus groups, and interviews ($n = 54$). The results indicate that students developed their interprofessional skills and person-centered practice, as confirmed by both the students and educators in the interviews. Additionally, the findings suggest that others also learned from the program. The study emphasizes the influence of workplace learning culture, resources, organizational infrastructure for IPC, and educators' embeddedness in the care organization on learning outcomes. The findings suggest that IPE is stimulated and accelerated by existing IPC and can stimulate or accelerate existing IPC. As the enabling factors are interrelated, addressing them simultaneously on all organizational levels may result in the faster development of an IPE-ready organization.

ARTICLE HISTORY

Received 14 April 2023
Revised 22 March 2024
Accepted 19 August 2024

KEYWORDS

Healthcare professionals;
interprofessional education;
nursing home care; quality of
care

Introduction

For over 50 years, research has demonstrated that interprofessional collaboration (IPC) and interprofessional education (IPE) may potentially lead to better care for clients and patients (Kelly et al., 2023; Reeves et al., 2012). IPC, also known as interdisciplinary collaboration in colloquial language, differs from uni- and multiprofessionally working, as it involves professionals from various disciplines working together to develop an integrated and cohesive response to the needs of care recipients and their social system (Tsakitzidis et al., 2017). Collaboration between professionals from different disciplines can be depicted as a continuum, ranging from uniprofessionally working at one end of the spectrum to IPC at the other end.


In this article, we consider professions of different educational levels that meet the same kind of needs of a care recipient as one discipline: for instance, a healthcare assistant (European Qualification Framework (EQF) level 3 (Elken, 2015)), licensed practical nurse (EQF level 4), and registered nurse (EQF level 6), who all care for residents daily in nursing homes (NHs) are considered one discipline. Ideally, the resident and/or their relatives should be part of the collaboration.

The prevalence of multiple health conditions is expected to rise globally, in conjunction with the aging population, thereby necessitating an increasingly holistic approach to address the complex needs of residents in nursing homes. IPE is emerging as a viable strategy to meet the demand for

effectively managing complex care within nursing homes (WHO, 2010). Traditionally, studies on IPC and IPE have predominantly focused on primary care and hospital settings, where patients typically receive short-term medical care (Doornebosch et al., 2022). However, living in a nursing home presents a distinct scenario compared to receiving short-term care in a hospital. Furthermore, the composition of the staff differs significantly: in nursing homes, approximately 80% of healthcare professionals are practically trained, whereas in hospitals, the majority holds academic training. Consequently, there is a critical need for research to investigate IPE involving (future) practically trained professionals in nursing homes (Verbeek et al., 2022). Presently, scientific knowledge in this area is limited. Recent studies on IPE in nursing homes have only involved students from universities (Reeves et al., 2016; Sheppard et al., 2015; Svensberg et al., 2021), failing to adequately represent the majority of the nursing home staff (Giosa et al., 2015).

Given the social and cultural differences among healthcare professionals, for instance, a professional identity, with its own languages and practices, it is essential to begin collaborating and learning from and with each other as early as possible in healthcare professionals' training (Harden, 1998) to address and reconcile differences and build mutual trust and understanding. This helps to prevent or overcome ignorance, prejudice, and rivalry and contributes to a safe and effective practice (Barr et al., 2017).

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 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/13561820.2024.2395966>

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Fostering IPC starts with IPE (Interprofessional Education Collaborative Expert Panel 2011). IPE requires authentic learning situations, where real-life problems can be experienced, discussed, and reflected upon with different professions (Morison et al., 2003). While knowledge about IPC can be obtained and simulations can be done in the classroom, care practice appears the ideal place to offer IPE (Cox et al., 2016). However, practice alone does not guarantee effective IPE during students' internships. It should be well-planned by educators from nursing homes and educational institutions (O'Leary et al., 2020). Tsakitzidis et al. (2017) explain that "interprofessional teamwork evolves from trial-and-error learning" (p. 591), highlighting the need to actively facilitate IPE. Therefore, the facilitator plays an important role in the success of IPE in practice (Freeth, 2005). Thus, while we know much about IPE and IPC in theory, empirical knowledge about how to realize and strengthen them in healthcare, specifically in NH care, is lacking (Svensberg et al., 2021; Tsakitzidis et al., 2017). As NH residents are increasingly affected by complex multimorbidity and geriatric syndromes, it becomes more urgent to implement IPC.

IPC that is responsive to residents' needs enhances person-centered practice (PCP), which can be defined as:

an approach to practice established through the formation and fostering of healthful relationships between all care providers, service users [residents] and others significant to them in their lives. It is underpinned by values of respect for persons, individual right to self-determination, mutual respect and understanding. It is enabled by cultures of empowerment that foster continuous approaches to practice development. (McCormack & McCance, 2017, p. 20)

Both approaches are necessary to providing quality care (Dahlke et al., 2020; Herbert, 2005). However, there is limited

understanding of how (future) professionals collaborate effectively in providing person-centered care.

Due to the importance of collaboration among professions in the complex context of NH care and the need to start practicing IPC as early as possible, we co-designed an IPE program with professionals in research, nursing, and care education at diverse qualification levels and nursing home care practice, called "Interprofessional Learning and Evaluating" (Muller-Schoof, Verbiest Marjolein, et al., 2023). The study aims to evaluate the IPE program and gain more insight into the influencing factors for IPE in NH practices. Our research questions are: After participating in the "Interprofessional Learning and Evaluating" program, what are the effects on the students' learning outcomes and their person-centered practice? Additionally, what factors enable students' learning?

Interprofessional educational program

The IPE program "IP Learning and Evaluating" aims to facilitate healthcare students in NH to collaborate interprofessionally. The program was co-designed by professionals in research, including the first author (IM), care education, and care practice for students of all healthcare professions, grades, and qualification levels, to be implemented during their internship in a nursing home. This co-design process has been previously described and published (Muller-Schoof, Verbiest Marjolein, et al., 2023). The IPE program is based on five IP building blocks (IPOS, 2016): (1) understanding each other's competencies, (2) working with interprofessional plans, (3) problem-solving in interprofessional teams, (4) appropriate interprofessional referrals, and (5) evaluating interprofessional teamwork. These building blocks have been

Table 1. Building blocks, themes, and learning goals of IPE program "IP learning and evaluating," inspired by Muller-Schoof, Snoeren, et al. 2023.

Building block	Learning theme	Learning outcomes
1. Understand each other's competencies	Gain insight into the work of one's own profession and that of other professions	<ol style="list-style-type: none"> 1. You can establish mutual working relationships in IP teams, and you can complement and support team members and take responsibility for this. 2. You can describe and carry out your own roles and responsibilities in IP teams. 3. You can describe the responsibilities and competences of other professionals, recognize boundaries, and know when to involve other professionals in IP.
2. Working with IP plans	Gain insight into completing an IP care (life) plan and working collaboratively in a person-centered way	<ol style="list-style-type: none"> 4. You can apply information from other professionals in your own interventions. 5. You contribute to a shared problem analysis of all professionals involved in which the personal perspective of the resident is central. 6. You make, together with the user (family) and other professionals, decisions about person-centered care and formulate treatment goals together.
3. Problem-solving in IP teams	Gain insight into giving feedback (to IP team members)	<ol style="list-style-type: none"> 7. You can provide information to caretakers and family members. 8. You can deal with the differences, misunderstandings, contradictions, and shortcomings of team members. 9. You can reflect on your own actions in IP teams. 10. You can give feedback to other team members and on team functioning in an appropriate and constructive way.
4. Making appropriate IP referrals	Gain insight into the social map of the region.	<ol style="list-style-type: none"> 11. You know and can identify the concept of the social map (informal and formal care).
5. Evaluating IP teamwork	Learn to evaluate person-centered care in an MD or IP team, using a further developed evaluation tool for geriatric care (Janssen et al., 2019)	<ol style="list-style-type: none"> 12. You can methodically evaluate person-centered care.

operationalized into five learning themes and 12 associated learning outcomes (see Table 1) by the co-designing team. The IPE program is designed around diverse learning theories, with activating, experience-oriented, and collaborating assignments, including reflection (e.g. Kolb, 1984; Schon, 1983), linked to the internship practice, as recommended in the scientific literature (Barr et al., 2017). The IPE program comprises six to eight 1.5-hour sessions, and educators have the flexibility to integrate the program into their curricula at their discretion, provided that they cover all the specified learning outcomes. The IPE program includes multiple exercises designed to achieve specific learning outcomes. There are for instance, various activities for getting acquainted with each other's professions (Table 1).

Methods

To evaluate the IPE program, this study employs a mixed methods approach, integrating both quantitative and qualitative methods, utilizing a convergent parallel design (Creswell & Plano Clark, 2011). By combining these two approaches, this study aims to achieve a holistic understanding. We present four IPE cycles of six to eight lessons across three nursing home units. Each NH unit forms a "case study," which we will refer to as Cases 1, 2, and 3. At one NH, we evaluated the IPE program twice (spring 2021 and autumn 2021, referred to as Cases 2a and 2b, respectively).

The study took place from January to December 2021 in the Netherlands. We conducted pre- and posttests using online surveys. Individual interviews and focus groups with students and educators were conducted to gain deeper insights into students' learning. The type of interview was based on the availability of participants.

The study took place during the COVID-19 period. Despite the challenges, students and educators involved in the described cases often managed to meet in the nursing homes. Some assignments were conducted online, facilitated by the learning program. The researcher couldn't attend the IPE sessions to stress the importance of participating in the study.

Participants and contexts

The co-design team of the IPE program recruited five educators, one of whom was a member of the co-designing team, to test the IPE program. These educators held positions as unit preceptors or lecturer practitioners (LPs) at three different NHs. Unit preceptors support and stimulate learning and development both professionals and students at a learning ward and are employed by the NH. LPs are academically trained healthcare professionals who work both in an educational institution and in practice and can provide care, do research, and facilitate learning and practice development (Snoeren et al., 2016). Both types of educators play a crucial role in bridging the gap between education and practice, but LPs, who are also involved in research and practice, may be more exposed to new developments, such as IPE, than unit preceptors.

All students who completed their internships at a unit of one of these NHs in 2021 attended the IPE program and were

invited to participate in the study. Additionally, during their internships all students had a workplace supervisor, who was a healthcare professional working on the nursing ward and indirectly related to the IPE when their students discussed their experiences or had questions about it.

Case 1 was situated on a learning ward that focused on training and guiding students into professional practice. Learning was done in a group, and students were supernumerary. The learning context was multiprofessional. The educator was a unit preceptor with a nursing background. Participating students were healthcare assistant students (EQF level 3) in their third years, student practical nurses (EQF level 4) in their third years, and nursing students (EQF level 6) in their first or fourth years.

Case 2 was situated in a forming Care Innovation Unit, where professionals worked in a multiprofessional setting. We define a Care Innovation Unit as "a ward where qualified staff members, a large number of students and educators collaborate intensively to integrate care, education, innovation and research" (Snoeren et al., 2016). The educator was a physiotherapist LP who had helped co-design the IPE program. She also set up the Care Innovation Unit and facilitated two groups of students, one in spring 2021 and one in autumn 2021. The first group, Case 2a, was a mix of nursing students of levels 3, 4, and 6 in their second, third, or fourth years. The second group, Case 2b, comprised a mix of students from more professions, such as physiotherapy and occupational therapy, in their third or fourth years.

Case 3 was also situated in a Care Innovation Unit. The collaboration involved a multiprofessional approach among professionals and an interprofessional approach among students. The educators ($n = 3$) worked together interprofessionally, and all were LPs. The educator group comprised one nursing LP, one physiotherapist LP, and one health scientist LP. Participating students were nursing EQF level 4–6 students and students (all EQF level 6) from the professions of physiotherapy, dietetics, speech therapy, and occupational therapy in their second, third, or fourth years.

Data collection

Quantitative data

Before the IPE program began, students were asked to provide informed e-consent and complete a baseline survey with three questionnaires. The first questionnaire collected background characteristics, such as age, gender, and educational level. The second questionnaire assessed students' self-reported IPC competencies using a four-point Likert scale, ranging from no command to complete command, for 12 IPC learning outcomes (Table 1). This questionnaire was designed by the team members of the co-designers of the learning program (Muller-Schoof, Verbiest Marjolein, et al., 2023). The third questionnaire assessed students' self-reported PCP using a self-scan person-centered care (PCC) (Muller-Schoof et al., 2022). This self-scan (Appendix A) included 25 items related to the following themes: knowing the resident, acknowledging the resident, coordinating, making contact and establishing a relationship, respectful approach, making decisions jointly, and feedback and personal development. Students could rate

their PCP on a six-point Likert scale ranging from no command to excellent command. After the IPE program, the students completed the second round of questionnaires on their self-reported development in the 12 learning outcomes and 25 PCP items. Only students who completed both pre- and posttests were included in the analysis.

Qualitative data

The researcher directly invited educators for individual interviews, and students were invited by the educators for focus groups. The interviewees in the focus groups met in a room at a nursing home. They provided written consent in advance. Those who were interviewed online sent their scanned forms digitally to the researcher prior to the interview. Semi-structured topic lists were used (Appendix B) to gain insight into students' learnings and the effect of the program. The students were interviewed face-to-face in two groups. One educator was interviewed in person (Case 3), and the others were interviewed via video call. Interviews lasted 45–60 minutes, were in Dutch and were audio-recorded.

Data analyses

Quantitative data

Descriptive statistics were used to describe students' characteristics using SPSS version 27. We conducted the Shapiro – Wilk test, computed sum scores, and used paired-sample t-tests to compare the mean scores pre- and post-program for the 12 learning outcomes and the self-scan PCC. We calculated the effect size using Cohen's d ($n \geq 30$) and Wilcoxon Signed Range tests ($n < 30$). We used the following thresholds: $p < .05$ for statistical significance, Cohen's d : small effect ($d = 0.2 < 0.5$), medium ($d = 0.5 < 0.8$), and large ($d \geq 0.8$), and effect size of the Wilcoxon Signed Range tests determined with the formula $r = Z/\sqrt{N}$: small effect ($r = 0.10 < 0.3$), medium ($r = 0.30 < 0.5$) and large ($r \geq 0.5$). The Pearson's r was calculated to describe the correlation between development on the learning outcomes and the self-scan PCC: low ($r = 0.10 < 0.3$), moderate ($r = 0.30 < 0.6$), and high correlation ($r \geq 0.6$).

Qualitative data

All audio-recorded interviews were transcribed verbatim and anonymized. The data were initially collected in Dutch, translated verbatim, and subsequently sent to proofreading services. First author (IM) performed an inductive thematic analysis (Braun & Clarke, 2006) using ATLAS.ti version 9. The analysis

involved becoming familiar with the data, generating initial codes, searching and reviewing themes, defining themes, and selecting vivid examples from the data. The first author then checked the themes and examples with one of the other authors (MS) to ensure their validity and give meaning to the findings (Appendix C). The themes and examples were further validated and given meaning by checking them with the other authors (MS, KL, MV). To assess students' learning, we utilized Kirkpatrick's evaluation model (Kirkpatrick & Kirkpatrick, 2005), encompassing level 1 to gauge students' reactions to the program, level 2 to measure increases in knowledge, skills, or experience, level 3 to evaluate changes in behavior, and level 4 to measure the tangible impact of the learning. As we were not able to interview residents because of COVID-19 measures, this level can't be verified. These levels collectively contributed to our final determination.

Integration of the data

The results of the quantitative and qualitative analysis were compared, contrasted and interpreted through discussion by all authors (Creswell & Plano Clark, 2011). The quantitative component involved statistical analyses and provided measurable data to identify patterns in students' learning outcomes and their person-centered practice. Meanwhile, the qualitative component contributed in-depth insights through interviews and focus groups, exploring examples of learning and the depth of understanding.

Ethics

This study was approved by the Ethical Review Board of the Tilburg School of Social and Behavioral Sciences of Tilburg University, the Netherlands (registration number RP322). All participants provided informed (e-)consent. Not participating in the research had no consequences for the students for guidance or assessment.

Results

Participants

The participants of the pre- and posttest were predominantly nurses studying at level EFQ 4 and 6 and in their third year (Table 2).

The response rate was 72% (52/72) for the pretest and 47% (34/72) for the posttest, with only students who completed both eligible for analysis ($n = 34$; Table 3). Two focus

Table 2. Characteristics of the participants.

		Total students EQF level ($n = 34$)	Nursing students EQF 4 ($n = 16$)	Nursing students, EQF 6 ($n = 15$)	Paramedical students, EQF 6 ($n = 3$)	Case 1 ($n = 8$)	Case 2 ($n = 16$)	Case 3 ($n = 10$)
Age	Mean age	20.2	19.3	20.6	23.0	19.6	19.9	21.2
	(SD)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Grade	Range	17–25	18–22	17–23	21–25	17–23	18–23	20–25
	1st	1	0	1	0	1	0	0
	2nd	2	1	1	0	0	1	1
	3rd	23	13	8	2	5	10	8
	4th	8	2	5	1	2	5	1
Gender	Female (%)	32 (94%)	15 (94%)	15 (100%)	2 (67%)	8 (100%)	14 (88%)	10 (100%)
	Male (%)	2 (6%)	1 (6%)	0 (0%)	1 (33%)	0 (0%)	2 (12%)	0 (0%)

Table 3. Participants per case study.

Case	Learners	Learners participating research (quantitative)	Learners participating research (qualitative)	Facilitator
Case 1	9	nursing EQF 4 (<i>n</i> = 5) nursing EQF 6 (<i>n</i> = 3) total (<i>n</i> = 8)	n.a.	unit preceptor (nursing background) (<i>n</i> = 1)
Case 2a	14	nursing EQF 4 (<i>n</i> = 6) nursing EQF 6 (<i>n</i> = 1) total (<i>n</i> = 7)	n.a.	physiotherapist lecturer-practitioner (LP) (<i>n</i> = 1)
Case 2b	19	nursing EQF 4 (<i>n</i> = 4) nursing EQF 6 (<i>n</i> = 3) physiotherapy EQF 6, (<i>n</i> = 2) total (<i>n</i> = 9)	n.a.	physiotherapist LP (<i>n</i> = 1)
Case 3	30	nursing EQF 4 (<i>n</i> = 1) nursing EQF 6 (<i>n</i> = 8) occupational therapy (<i>n</i> = 1) total (<i>n</i> = 10)	nursing EQF 6, 2 nd year (<i>n</i> = 4) nursing EQF 6, 3 rd year (<i>n</i> = 5) nursing EQF 4, 3 rd year (<i>n</i> = 1) occupational therapy, 3 rd year (<i>n</i> = 1) physiotherapy EQF 6, 4 th year (<i>n</i> = 2) speech therapy EQF 6, 4 th year (<i>n</i> = 1) dietetics EQF 6, 4 th year (<i>n</i> = 1) nursing EQF 6, 4 th year (<i>n</i> = 1) total (<i>n</i> = 16)	nursing LP physiotherapist LP health scientist LP (<i>n</i> = 3)
Total	72	34	16	6

groups were conducted in person with students from diverse professions and grades from Case 3 (Table 3). The students in Cases 1 and 2 came from two educational institutes and in Case 3 from four educational institutes. All participating educators (*n* = 2) were interviewed in Cases 1 and 2, whereas in Case 3, only 33% of the educators were interviewed (*n* = 1).

No students from Cases 1 or 2 participated in the focus groups. The two groups of interviewed students were diverse in both profession and year of study (Table 3). The four individual interviews were conducted online with the unit preceptor of Case 1, twice online with the physiotherapist LP of Case 2, and in person with the nursing LP of Case 3. Because of the measures of COVID-19, several groups withdrew from the study due to excessive demands. Educators observed that practically trained students (EQF level 3 and 4), in particular,

felt burdened, resulting in a lack of energy to actively engage in the study.

Learning among students

Overall, the results show that students report that they have learned from the IPE program “IP learning and evaluating.” When analyzing the pre- and post-data of the students, a statistically significant improvement in their IP competences, based on the 12 learning outcomes, was observed after attending the IPE program, with a large effect size (31 vs. 37, *p* < .001, Cohen’s *d* = 0.96, Table 4). There also was a statistically significant improvement in their self-reported person-centered care skills, with a medium effect size (106 vs. 117, *p* < .001, *r* = 0.45, Table 4). Furthermore, there was a significant improvement on both scales, with a medium effect size for EQF level 4 and a large effect size for EQF level 6. There was no significant correlation,

Table 4. Comparison of pre- and post-test scores on learning outcomes and self-scan PCC.

	N	M (SD) T0	M (SD) T1	<i>p</i>	ES
IP learning outcomes^a					
Total group	34	31 (6)	37 (4)	<.001	0.96
EQF level 4	16	32 (6)	36 (3)	.006	0.49
EQF level 6	18	30 (6)	38 (4)	<.001	0.59
Case 1	8	37 (4)	39 (4)	.168	0.35
Case 2	16	31 (5)	36 (4)	.001	0.58
Case 3	10	26 (6)	37 (2)	.005	0.63
Self-scan PCC^b					
Total group	22	106 (11)	117 (9)	.001	0.45
EQF level 4	13	109 (11)	119 (7)	.034	0.42
EQF level 6	9	104 (12)	114 (11)	.015	0.57
Case 1	6	106 (11)	122 (10)	.028	0.59
Case 2	10	106 (13)	113 (8)	.085	0.34
Case 3	6	107 (10)	119 (9)	.075	0.51

M = Mean, *SD* = standard deviation, *ES* = effect size, *PCC* = person-centered care.

^aTotal scores for learning outcomes could range from 12 to 48.

^bTotal scores on the self-scan PCC could range from 25 to 250.

T0 measurement before students start the first lesson of the IPE program.

T1 measurement end of last lessons of IPE program.

however, between the improvement on the two scales ($p = .075$, $r = 0.39$).

The interviews support and provide further insight into the self-reported scores.

Students' reaction

Most students liked the IPE program, in spite of some students indicating that they had already covered certain material in school, at Kirkpatrick's level 1 evaluation. They also reveal that attending the IPE program contributed to students' increased awareness of the value of IPC. The IPE program encouraged students to act interprofessionally by improving communication and coordination of care across professions. Knowing each other, for example, facilitated smoother communication with other professions, fostering increased collaboration and providing a broader perspective on resident care. A nursing student said:

You talk to each other more easily, and I email them more easily. And I was also allowed to accompany a physiotherapy student, and, if you have already seen each other and have already worked together, then it [coordination] becomes much easier. (Student, Case 3)

Increased knowledge, skills, or experience Except for development measured on the 12 learning outcomes and self-scan of person-centered care, the educators also recognized "that they [students] have a very clear image of another profession and they are also comfortable approaching professionals from another profession" (Case 2). These developments correspond to Kirkpatrick's level 2. The IPE program also helped students better assess what was important to put in an interprofessional plan rather than separate plans based on their own professions. The IPE program raised awareness of the importance of good coordination that might lead to better care for residents:

We walked an extra distance with a resident, and then the physiotherapy student said: "Maybe we should coordinate that more clearly, because you can also overload someone." (Student, Case 3)

Changes in behavior

Learning from and with each other led to changes in behavior, such as consulting other professions earlier. This behavior represents an advancement to level 3 of Kirkpatrick's evaluation model. The IPE program also emphasized IP values, such as mutual respect and valuing differences while working together, which created more appreciation for each other among students:

You do get more insight into a resident, and I also enjoyed hearing that physio is super active with someone. I didn't know physiotherapy played such a big role in his rehabilitation process. (Student, Case 3)

Students learned both individually and collaboratively: for instance, by observing other students as they worked and by practicing joint consultations with students and various professionals. They gained experience in engaging in dialogue and questioning other professions about their expertise, listening to other perspectives, and reflecting on residents' questions with a cross-disciplinary view by discussing with each other:

What do you think about that? ... You don't always know what everyone else is thinking. And you also learn to look critically at what others are saying. (Student, Case 3)

The educators also agree that "students then really looked from different perspectives. All students gained more knowledge, and then go on to provide better care" (Nursing LP, Case 3).

Learning among others than students

Interviews showed that those other than students learned as well. Educators became more aware of IPC and the potential of IPE. Furthermore, educators indicated that workplace supervisors involved in the IPE program learned from assignments and questions from students. Workplace supervisors also learned from seeing examples of IPC/IPE from students and educators. The extent to which IPC was stimulated seems to depend on the extent to which interprofessional work was already taking place. In Case 1, where working with healthcare professionals other than in nursing was more compartmentalized, awareness grew that it made sense to develop IP competences. For example, the educator received questions from the healthcare professionals that were not participant of this study like "I would have liked to join such an IPE assignment as well." In addition, possibilities were discovered to cooperate more with other healthcare professionals:

I literally didn't notice until this assignment [from the IPE program]: there are indeed students at physiotherapy, for example. I did not know that. (Unit preceptor, Case 1)

In Case 3, educators became aware of the IPE and their own IPC potential, as they were confronted with the fact that they already did encourage their students to work IP but that they themselves were still working little IP in their daily practice.

Student workshops are actually always given by either two nurses, or two physiotherapists, but that mix, put a physio and a nurse next to each other that they facilitate together and also mutually learn from each other's area of expertise. (Nursing LP, Case 3)

This awareness led to the improvement of their IPC and IP, as stated in an interview, improving interventions for both students and professionals, such as by practicing interprofessional consultations with students and their supervisors to prepare them for the "real" consultation with all professions involved:

That was an eye-opener: we do facilitate students, but what kind of exemplary behavior do we show ourselves? So, I think a bit of awareness among staff and workplace supervisors has been created: how can we shape this for future periods? (Nursing LP, Case 3)

Enablers of students' IP learning

Students learned from the IPE program, and the degree of their learning was influenced by three factors: (1) workplace learning culture, (2) resources and organizational infrastructure for IPC, and (3) the educators' embeddedness in the care organization. The following is an elaboration of these factors.

Workplace learning culture

A supportive learning culture is expected and essential in a learning ward and a Care Innovation Unit. It is perceived as an enabling factor for IPE. In a workplace culture like this, it is customary to engage in reflection and to embrace and appreciate diversity as a general practice. Additionally, from the interviews, educators acknowledged the importance of a “safe learning environment” (Case 1), and students expressed that there were both space and opportunities for learning:

There is always room to learn; they [LPs and workplace supervisors] always consider what you want to do that day. If you indicate what kind of guidance you need, then everyone is always open to help you that day. The learning climate is very nice here. (Student, Case 3)

Conversely, the absence of a supportive learning climate and feelings of a lack of safety seem to hinder IPE, which could be addressed and changed by discussing these feeling openly with the team:

The students felt within the team that there was a certain culture of gossiping. . . . The students said: sometimes people talked about us instead of with us. Those were situations that students struggled with. They were relieved to bring that up together. (Physiotherapist LP, Case 2a)

Resources and organizational infrastructure for IPC

It was easier to organize IPE in organizations where there were diverse professions were already accustomed to (multi- or) IPC as well as an infrastructure for IPC, such as IP introduction days, IP meetings, or the opportunity to meet with other professions. For example, in Case 2, occupational therapists and physical therapists share a workroom with nurses and healthcare assistants, which reduced the barriers to collaboration. In Case 3, nursing professionals and other healthcare professionals collaborated with students from all professions, enabling the following situation:

Everyone there [Care Innovation Unit] is set up to supervise students, and not only a nurse, but also a physiotherapist, occupational therapist, or speech therapist. (Student, Case 3)

Reciprocally, IPE also helped develop the IP infrastructure as awareness grew. For instance, in Case 3, educators recognized that they conducted lessons with supervisors who were consistently present on a daily basis, such as physiotherapists and speech therapists, instead of involving professionals engaged with residents, such as a psychologist or a dentist.

Educators' embeddedness in the care organization

The educators' intern network, familiarity with the organization, and acknowledgment and appreciation from others in their capacity as educators (Case 3) seemed to influence the extent to which educators could implement IPE. It appeared that educators faced less challenge in organizing IPE within organizations where they were integrated into the learning network. Consequently, they found it more feasible to bring together various professionals for workshops, as well as to coordinate intervention and reflection sessions in real-world situations during students' internships. This facilitated a more robust IPE by incorporating learning and reflection from diverse perspectives. In Case 3, multiple educators from

different professions collaborated, concentrating on the learning and development of a range of students, thereby fostering and enhancing IPE. They could fit the IPE program into the regular student programs of multiple professions. In contrast, Case 1 presented challenges, as the unit preceptor's role was linked only to healthcare assistant and nursing students. The presence of students from other healthcare teams, such as physiotherapists, was unknown, making it difficult to organize IPE.

Discussion

This study investigated students' learning from attending the IPE program in nursing homes and what factors influenced this learning. The students learned both collaborative skills, measured by 12 learning outcomes, and their PCP, through experience, observation, considering other perspectives, and individual and collective reflection. This is in line with other studies (e.g. Eraut, 2004; Oandasan & Reeves, 2005a) who emphasize the value of experience and reflection for learning in practice.

Despite the low participation in Case 1, students in Case 2 and 3 demonstrated learning the 12 outcomes. This could relate to the enabling factors, which are further elaborated below. Significant improvement in person-centered-practice was observed only in Case 1; no statistical significance was found in the other cases. Unfortunately, the participant numbers with an EQF level of 4 are too low to draw conclusive findings. However, teachers noted that these students also benefited from the IPE program. Their self-reported person-centered practice did improve, however, similar to the students with an EQF level of 6. While recent IPE initiatives within nursing homes are scarce and do not specifically encompass future practically trained professionals, the study by Svensberg and colleagues (2021) demonstrates the benefits of IPE for academically trained students. Future research on the different levels of education in IPE in the nursing home context is needed.

Additionally, the educators, workplace supervisors, and associated healthcare professionals learned from the IPE program, indicating that implementing IPE has effects beyond facilitating students. Students' learning was enabled by (1) the workplace learning culture, (2) resources and organizational infrastructure for IPC, and (3) educators' embeddedness in the care organization.

Enabling factors

Workplace culture

As observed at the learning ward and in the Care Innovation Unit s, a workplace culture that values learning enables IPE. Edmondson and Lei (2014, p. 25) found that such a culture is associated with perceived psychological safety, defined as “perceptions of the consequences of taking interpersonal risks in a particular context, such as a workplace.” According to Edmondson and Lei (2014), an individual's status influences their perceived psychological safety: the lower the hierarchical status, the lower perceived psychological safety. Additionally, Cardiff et al. (2020) suggest that a lack of psychological safety

may be a potential barrier to IPE. We observed this barrier to learning once in our study when feelings of a lack of safety due to gossiping were openly discussed in Case 2b. The infrequency with which we encountered this barrier may be due to professionals' being accustomed to working with many students and having a safe culture in place, or because students did not feel comfortable mentioning it. Nevertheless, continuous attention is required from educators, workplace supervisors and healthcare professionals involved to strengthen a safe workplace culture (Cardiff et al., 2020), particularly when students are involved, as they may feel they have a lower hierarchical status. By "hierarchical status," we refer to potential distinctions in authority or rank within interprofessional teams. This phenomenon is well-documented in scientific publications from contexts other than nursing homes (e.g. Dahlke et al., 2020; Matzke et al., 2014; Reeves et al., 2009).

Resources and infrastructure

Reeves et al. (2016) note that the implementation of IPE is complex, and that IPE requires a supportive organizational infrastructure, such as dedicated time for learning, physical spaces designed to promote interprofessional collaboration, facilitators, and interprofessional teams. This is in line with the study presented, which shows that the presence of a diverse range of healthcare professions and an infrastructure for IPC are important resources for organizing IPE in nursing homes to enable students' learning. For example, a workspace shared by multiple professions reduced the barriers to collaboration. Furthermore, the pre-developed IPE program assisted educators in the implementation of IPE, providing support through various reflection assignments and guidance on effective communication for the creation of a care plan. Supplementary to the systematic review of Reeves et al. (2016), this study shows that this also applies the other way around: IPE also contributes to the development of an IPC infrastructure, as evidenced by educators using the IPE program learning materials to invite all professions involved with a resident.

Additionally, our study shows that the extent to which IPC was present on all organizational levels in NHs seemed to determine the learning outcome. In Case 1, nursing students and the educator became more open to collaboration with diverse professions. In Case 2, the students showed greater awareness of diverse professions and experienced collaborative learning, while in Case 3 changes in students' behavior were observed and educators' perspective on IPC/IPE broadened. Moreover, in Case 3 the infrastructure was improved by planning to involve professions that previously worked unprofessionally, enabling more collective learning.

Educators' embeddedness

Effective facilitation appeared crucial for the successful implementation of IPE. While the pre-developed IPE program offered lesson plans and assignments, educators were required to identify and leverage IP learning moments. This involved, for example, reflective practices in response to emerging situations, fostering collaborative knowledge creation. Proficiency

in employing interactive learning methods was a prerequisite for facilitating the pre-developed IPE program, as no training for program facilitation was provided.

Furthermore, our findings suggest that educators deeply integrated into the care organization, focusing on the learning and development of students from diverse professions are more effective in facilitating IPE and fostering IPC. This effectiveness stems from an increased awareness among all professionals involved and from changing the infrastructure. For instance, in Case 3, three LPs from different professions successfully established IP learning and broadened IPC by inviting new professions, such as student psychologists, to participate in subsequent sessions. As explained by Reeves et al (2016), a better understanding of the organization's culture by internal facilitators may be a reason for this. External facilitators who are not employed by the organization, however, can provide a fresh perspective and new ideas for implementing IPE. The educators' position may also be influenced by organizational hierarchy. Gaining more insight into the facilitators' competencies and level of embeddedness in relation to the degree of IPC can be useful in selecting the appropriate facilitator in the relevant context, with the enhancement of students' IPE as the primary goal.

Three factor and multi-level approach

Our findings suggest that the three factors, workplace culture, resources and infrastructure and educators' embeddedness, not only influenced students' learning, but also seemed to stimulate and accelerate each other. The presence of one factor seemed to reinforce the presence of the other factors. For example, in Case 3, where the organization embraced IPC, the educator's embeddedness helped them to facilitate IPE more effectively. Conversely, when the educators conveyed the IP values by inviting associated workplace supervisors from diverse professions to join practicing interprofessional consultations with their students, they expanded the IP network and strengthened the organization's IP culture. In this way, the educators became even more embedded in the organization.

Our findings indicate that IPE and IPC are strengthened when the three enabling factors manifest at the micro (individual), meso (workplace, team), and macro (organizational) levels. For instance, organizational cultural IP values (macro) were strengthened by educators' inviting associated professionals to participate in the consultation (meso). This expanded the collaboration (meso) and individual experiences (micro) and strengthened the awareness of the value of IPC of associated professionals (macro). When educators and associated professionals perceive active engagement in more IPE and IPC, it appears to be linked to seeing themselves reflected and supported in the organization at meso and macro levels. Space and time are allocated, for instance, and IPE is encouraged by leadership. Scientific literature underscores that advancing IPE requires organizational support, which manifests at both the meso and macro levels through individual (micro) actions (Oandasan, 2015).

Although others (Cardiff et al., 2020; Oandasan & Reeves, 2005b; Reeves et al., 2016) acknowledge a supportive culture, infrastructure and facilitation as enabling factors for IPE, they

do not explicitly address the potential enhancement or acceleration of IPC resulting from the implementation of IPE. There are, however, indications in the literature that a multi-level approach is useful to strengthen IPE and IPC. For example, Oandasan and Reeves (Oandasan & Reeves, 2005b) suggest that the successful implementation of IPE may depend specifically on the organizational infrastructure (macro), while others highlight the meso level by indicating that a positive workplace culture is necessary for changes, such as implementing IPE (Manley et al., 2011). Reeves et al. (2016) emphasize the need for a supportive institutional culture, a supportive infrastructure, and ongoing commitment from healthcare organizations, professionals, and policymakers when introducing IPE. As such, a three-factor and multi-level approach appears useful for implementation IPE and could be investigated in future research.

In addition to a multi-pronged approach, it is necessary to determine readiness for IPE. Given the mutual reinforcement between IPE and IPC, it also seems important to determine when an organization is ready to effectively implement IPE. Manley's concept of organizational readiness can be helpful in establishing minimal workplace conditions before introducing IPE (Manley et al., 2011). This includes essential shared values, such as PCP and teamwork, a shared, adaptability to change, and a formal system that supports development. Thistlethwaite (Reeves et al., 2012, p. 67) states that IPC "may occur in more flexible, fluid and distributed contexts, such as in networks and across care sectors, including education," suggesting that organizational readiness for IPE also depends on the collaboration and the relationships the organization has with others outside it, like with educational institutes and their employees. She also suggests that IPC may transcend formal and fixed structures, such as scheduled team meetings. By contrast, our findings also show that IPE fuels IPC, as associated staff became aware of IPC opportunities and started asking questions about IPC. It seems that one could also use IPE as an impetus to achieve IPC. Finally, when collaborating with diverse educational levels, the findings of this study show the importance of a shared language.

Strength and limitations

The co-designed IPE program was facilitated in different NH practices with care students of different EQF levels. This study identified that the nature of the changes realized by implementing IPE is related to the extent of the IPC culture and infrastructure already present in NHs. We also saw that, conversely, IPE can be used as an impetus to initiate IPC. We can also cautiously conclude that the enabling factors are interrelated. Moreover, as most research on IPE and IPC focusses on the hospital context with nurses and medical students (Doornebosch et al., 2022), this study adds to the body of knowledge regarding NH contexts, including different educational levels and professions. Sharing our insights might help accelerate the IPE and IPC processes in NH contexts and motivate NH leaders and managers to invest in IPE and IPC.

One limitation of our study is its scale and scope, which means that the findings should be interpreted with caution. We conducted an examination of four IPE cases at three NH

units. However, it is important to note that no student healthcare assistants (EQF level 3) participated in the survey or focus groups, although a few were present in the testing groups. In addition, only students from Case 3 participated in the focus groups. The absence of student healthcare assistants from the qualitative study may leave hierarchical status and stereotyping unexamined. "Stereotyping" pertains to preconceived notions or assumptions about individuals based on their professional roles. In all cases under investigation, the prevalence of a learning culture, characterized by inclusiveness and openness to differences, could have influenced our ability to scrutinize hierarchical dynamics and stereotyping. This is because such cultures inherently discourage or minimize these phenomena. Additionally, the participants in the quantitative part of the study may have given a skewed perspective as the participants were predominantly from nursing professions and specific education levels, potentially offering a one-sided view. However, it is noteworthy that students from professions other than nursing were represented in the testing and interview groups, ensuring a diverse range of perspectives were captured and considered.

Although there was data triangulation, a potential limitation of our study is self-report bias. Social desirability bias may have taken place (van de Mortel, 2008), but educators confirmed in interviews that many students did indeed learn, giving examples of students who became more aware of the importance of IPC. Therefore, we assume that the potential desirability bias was minimal. Cognitive bias, such as under- or overestimation of skills and attitude (Kruger & Dunning, 1999), might have occurred during the first online survey, but gaining experience, reflecting on interactions, and receiving feedback were part of the IPE program, which can counteract the Dunning – Kruger effect. Despite the potential Dunning – Kruger effect during the first survey, results improved significantly in the second survey after the IPE program had finished, showing a less-biased view.

Because of the consequences of the COVID-19 pandemic, we were not able to implement the original plan of testing the IPE program among healthcare professionals. This would have provided more insight into the effects of the IPE program on the collaboration with practically trained students. Despite these limitations, we hold the view that the evaluation offers valuable perspectives on IPE in nursing homes. By sharing our insights on IPE in nursing home care can help to develop research in this setting.

Recommendations and further research

Based on the foregoing, we make the following recommendations:

- Embed IPE in the care curricula at all educational levels early on to promote socializing with diverse professions and prevent hierarchical status and stereotyping issues.
- NHs should invest in IPC and IPE, embrace IP values, and support educators to become embedded in the broader healthcare network, for instance stimulate collaboration with diverse professions within NHs.

Future research in the NH context that we recommend should:

- include educational levels 3 and 4 of (student) healthcare professionals;
- involve a diverse range of professional groups of students of diverse educational levels in NH IPE programs;
- focus on all involved, such as the educators, workplace supervisors, and associated healthcare professionals;
- study how to stimulate building diverse networks in NHs and include external facilitators;
- investigate the extent to which IPE accelerates IPC on a larger scale and how the mechanism of acceleration operates; and
- study the effect of IPE on residents' well-being.

Conclusion

The findings appear to show that the degree to which IPC is already present in NHs is related to the degree to which the three enabling factors for IPE are present. Moreover, IPE appears to be able to stimulate and/or accelerate already-present IPC. From the above we can tentatively deduce that the enabling factors because they are interrelated, can be addressed in any order. Still, addressing all factors simultaneously and on all organizational levels may result in faster development of an IPE-ready organization.

Acknowledgments

This research was conducted at the Academic Collaborative Centre (ACC) Older Adults of Tranzo, Tilburg University. This is a structural and equivalent partnership between Tilburg University and eleven organizations in the field of long-term care for older adults: Avoord, Azora, Brabantzorg, CZ Zorgkantoor, De Wever, Groenhuysen, Mijzo, Surplus, SVRZ, TanteLouise, Thebe. Scientific research within the ACC is conducted through co-creation with older adults, family caregivers and/or care professionals and in accordance with the guiding principles of scientific integrity. We thank all study participants for their valuable contributions to this study.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The research is financed by the Netherlands Organisation for Health Research and Development (ZonMw) [grant number 516022521, 2019].

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References

- Barr, H., Ford, J., Gray, R., Helme, M., Hutchings, M., Low, H., Machin, A., & Reeves, S. (2017). *Interprofessional education guidelines*. CAIPE. <https://www.caipe.org/resources/publications/caipe-publications/caipe-2017-interprofessional-education-guidelines-barr-h-ford-j-gray-r-helme-m-hutchings-m-low-h-machin-reeves-s>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101.
- Cardiff, S., Sanders, K., Webster, J., & Manley, K. (2020). Guiding lights for effective workplace cultures that are also good places to work. *International Practice Development Journal*, 10(2), 1–20. <https://doi.org/10.19043/ipdj.102.002v2>
- Cox, M., Cuff, P., Brandt, B., Reeves, S., & Zierler, B. (2016). Measuring the impact of interprofessional education on collaborative practice and patient outcomes. *Journal of Interprofessional Care*, 30(1), 1–3. <https://doi.org/10.3109/13561820.2015.1111052>
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). SAGE Publications.
- Dahlke, S., Hunter, K. F., Kalogirou, M., Negrin, K., Fox, M., & Wagg, A. (2020). Perspectives about interprofessional collaboration and patient-centred care. *Canadian Journal on Aging/La Revue Canadienne Du Vieillessement*, 39(3), 443–455. <https://doi.org/10.1017/s0714980819000539>
- Doornebosch, A. J. M., Smaling, H. J. A. P., & Achterberg, W. P. M. D. P. (2022). Interprofessional collaboration in long-term care and rehabilitation: A systematic review. *Journal of the American Medical Directors Association*, 23(5), 764–777. <https://doi.org/10.1016/j.jamda.2021.12.028>
- Edmondson, A. C., & Lei, Z. (2014). Psychological safety: The history, renaissance, and future of an interpersonal construct. *Annual Review of Organizational Psychology & Organizational Behavior*, 1(1), 23–43. <https://doi.org/10.1146/annurev-orgpsych-031413-091305>
- Elken, M. (2015). Developing policy instruments for education in the EU: The European qualifications framework for lifelong learning. *International Journal of Lifelong Education*, 34(6), 710–726.
- Eraut, M. (2004). Informal learning in the workplace. *Studies in Continuing Education*, 26(2), 247–273.
- Freeth, D. (2005). *Effective interprofessional education: Development, delivery and evaluation*. Blackwell Pub. <https://doi.org/10.1002/9780470776438>
- Giosa, J., Holyoke, P., Bender, D., Tudge, S., & Gifford, W. (2015, 2). Observe, coach, assist, and report: An emerging framework for integrating unregulated healthcare providers into interdisciplinary healthcare teams. *Journal of Research in Interprofessional Practice and Education*, 5. <https://doi.org/10.22230/jripe.2015v5n2a200>
- Harden, R. M. (1998). AMEE guide No. 12: Multiprofessional education: Part 1 - Effective multiprofessional education: A three-dimensional perspective. *Medical Teacher*, 20(5), 402–408. <https://doi.org/10.1080/01421599880472>
- Herbert, C. P. (2005). Changing the culture: Interprofessional education for collaborative patient-centred practice in Canada. *Journal of Interprofessional Care*, 19 (Suppl. 1), 1–4. <https://doi.org/10.1080/13561820500081539>
- Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Interprofessional Education Collaborative.
- IPOS. (2016). *Interprofessional competence and interprofessional building blocks*. Heerlen: Zuyd University of Applied Sciences.
- Janssen, M. M., Vos, W., & Luijkx, K. G. (2019). Development of an evaluation tool for geriatric rehabilitation care. *BMC Geriatrics*, 19(1), 206. <https://doi.org/10.1186/s12877-019-1213-0>

- Kelly, S., Stephens, M., Clark, A., Chesterton, L., & Hubbard, L. (2023). 'Not the last resort': The impact of an interprofessional training care home initiative on students, staff, and residents. *Journal of Interprofessional Care*, 37(5), 774–782. <https://doi.org/10.1080/13561820.2023.2168258>
- Kirkpatrick, D. L., & Kirkpatrick, J. D. (2005). *Transferring learning to behavior: Using the four levels to improve performance* (1st ed.). Berrett-Koehler Publishers. <http://www.books24x7.com/marc.asp?bookid=9446>
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall. <http://www.gbv.de/dms/bowker/toc/9780132952613.pdf><https://bac-lac.on.worldcat.org/oclc/300162732>
- Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of Personality & Social Psychology*, 77(6), 1121–1134. <https://doi.org/10.1037//0022-3514.77.6.1121>
- Manley, K., Saunders, K., Cardiff, S., & Webster, J. (2011). Effective workplace culture: The attributes, enabling factors and consequences of a new concept. *International Practice Development Journal*, 1(2). <http://www.fons.org/library/journal.aspx>
- Matzke, B., Houston, S., Fischer, U., & Bradshaw, M. J. (2014). Using a team-centered approach to evaluate effectiveness of nurse-physician communications. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 43(6), 684–694. <https://doi.org/10.1111/1552-6909.12486>
- McCormack, B., & McCance, T. (2017). *Person-centred practice in nursing and health care: Theory and practice* (2nd ed.). John Wiley & Sons Ltd.
- Morison, S., Boohan, M., Jenkins, J., & Moutray, M. (2003). Facilitating undergraduate interprofessional learning in healthcare: Comparing classroom and clinical learning for nursing and medical students. *Learning in Health and Social Care*, 2(2), 92–104. <https://doi.org/10.1046/j.1473-6861.2003.00043.x>
- Muller-Schoof, I. J. M., Snoeren, M., Stoop, A., Verbiest, M. E. A., & Luijckx, K. G. (2023). "Tell me! Learning from stories", an evaluation of an educational program on narrative research for care professionals in nursing homes [Manuscript submitted for publication]. Tranzo.
- Muller-Schoof, I. J. M., Stoop, A., Verbiest, M. E. A., & Luijckx, K. G. (2022). Development of a self-scan to evaluate and improve person-centered care in nursing homes: A delphi study. *Journal of Nursing Education and Practice*, 12(6), 22. <https://doi.org/10.5430/jnep.v12n6p22>
- Muller-Schoof, I. J. M., Verbiest Marjolein, E. A., Snoeren, M., & Luijckx Katrien, G. (2023). Lessons learned from Co-designing educational programs for student and practicing healthcare professionals in nursing homes: A participatory qualitative study. *Journal of Participatory Research Methods*, 4(1). <https://doi.org/10.35844/001c57529>
- Oandasan, I. (2015). Chapter 5: Changing organizational culture to embrace interprofessional education and interprofessional practice. In *Anonymous interprofessional Client-Centred collaborative practice* (pp. 67–82). Nova Science Publishers, Inc.
- Oandasan, I., & Reeves, S. (2005a). Key elements for interprofessional education. Part 1: The learner, the educator and the learning context. *Journal of Interprofessional Care*, 19 (Suppl. 1), 21–38. <https://doi.org/10.1080/13561820500083550>
- Oandasan, I., & Reeves, S. (2005b). Key elements of interprofessional education. Part 2: Factors, processes and outcomes. *Journal of Interprofessional Care*, 19 (Suppl. 1), 39–48. <https://doi.org/10.1080/13561820500081703>
- O'Leary, N., Salmon, N., & Clifford, A. M. (2020). 'It benefits patient care': The value of practice-based IPE in healthcare curriculums. *BMC Medical Education*, 20(1), 424. <https://doi.org/10.1186/s12909-020-02356-2>
- Reeves, S., Fletcher, S., Barr, H., Birch, I., Boet, S., Davies, N., McFadyen, A., Rivera, J., & Kitto, S. (2016). A BEME systematic review of the effects of interprofessional education: BEME guide No. 39. *Medical Teacher*, 38(7), 656–668. <https://doi.org/10.3109/0142159X.2016.1173663>
- Reeves, S., Rice, K., Conn, L. G., Miller, K.-L., Kenaszchuk, C., & Zwarenstein, M. (2009). Interprofessional interaction, negotiation and non-negotiation on general internal medicine wards. *Journal of Interprofessional Care*, 23(6), 633–645. <https://doi.org/10.3109/13561820902886295>
- Reeves, S., Tassone, M., Parker, K., Wagner, S. J., & Simmons, B. (2012). Interprofessional education: An overview of key developments in the past three decades. *Work*, 41(3), 233–245. <https://doi.org/10.3233/WOR-2012-1298>
- Schon, D. A. (1983). *The reflective practitioner: How professionals think in action*. Basic Books.
- Sheppard, K. D., Ford, C. R., Sawyer, P., Foley, K. T., Harada, C. N., Brown, C. J., & Ritchie, C. S. (2015). The interprofessional clinical experience: Interprofessional education in the nursing home. *Journal of Interprofessional Care*, 29(2), 170–172. <https://doi.org/10.3109/13561820.2014.942776>
- Snoeren, M., Volbeda, P., Niessen, T. J. H., & Abma, T. A. (2016). Dutch care innovation units in elderly care: A qualitative study into students' perspectives and workplace conditions for learning. *Nurse Education in Practice*, 17, 174–181. <https://doi.org/10.1016/j.nepr.2015.11.005>
- Svensberg, K., Kalleberg, B. G., Rosvold, E. O., Mathiesen, L., Wøien, H., Hove, L. H., Andersen, R., Waaktaar, T., Schultz, H., Sveaass, N., & Hellesø, R. (2021). Interprofessional education on complex patients in nursing homes: A focus group study. *BMC Medical Education*, 21(1), 21. <https://doi.org/10.1186/s12909-021-02867-6>
- Tsakitzidis, G., Anthierens, S., Timmermans, O., Truijten, S., Meulemans, H., & Van Royen, P. (2017). Do not confuse multidisciplinary task management in nursing homes with interprofessional care! *Primary Health Care Research & Development*, 18(6), 591–602. <https://doi.org/10.1017/S146342361700024X>
- van de Mortel, T. F. (2008). Faking it: Social desirability response bias in self-report research. *Australian Journal of Advanced Nursing*, 25 (4), 40–48.
- Verbeek, F. H. O., Lovink, M. H., Laurant, M. G. H., & van Vught, A. J. A. H. (2022). Developing an interprofessional learning and working culture to improve person-centred care in nursing homes: A realist action research protocol. *BMJ Open*, 12(3), e058319. <https://doi.org/10.1136/bmjopen-2021-058319>
- WHO. (2010). *Framework for action on interprofessional education & collaborative practice*.