Medical Teacher

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/imte20

Twelve tips for designing, implementing and sustaining interprofessional training units on hospital wards

Saskia C. M. Oosterbaan-Lodder, Joyce Kors, Cora L. F. Visser, Birgitte Mørk Kvist, Rashmi A. Kusurkar & Fedde Scheele

To cite this article: Saskia C. M. Oosterbaan-Lodder, Joyce Kors, Cora L. F. Visser, Birgitte Mørk Kvist, Rashmi A. Kusurkar & Fedde Scheele (2024) Twelve tips for designing, implementing and sustaining interprofessional training units on hospital wards, Medical Teacher, 46:3, 323-329, DOI: 10.1080/0142159X.2023.2252591

To link to this article: https://doi.org/10.1080/0142159X.2023.2252591

MEDICAL TEACHER
2024, VOL. 46, NO. 3, 323–329
https://doi.org/10.1080/0142159X.2023.2252591

MEDICAL TEACHER
Taylor & Francis
Taylor & Francis Group

TWELVE TIPS

Twelve tips for designing, implementing and sustaining interprofessional training units on hospital wards

Saskia C. M. Oosterbaan-Lodder[a], Joyce Kors[b,c,d], Cora L. F. Visser[e], Birgitte Mørk Kvist[f], Rashmi A. Kusurkar[b,d,g] and Fedde Scheele[a,b,h]

[a]Teaching Hospital Department, OLVG Hospital, Amsterdam, The Netherlands; [b]Research in Education, Amsterdam UMC location Vrije Universiteit, Amsterdam, the Netherlands; [c]Midwifery Science, AVAG, Amsterdam Public Health Research Institute, Amsterdam UMC location Vrije Universiteit Amsterdam, Amsterdam, The Netherlands; [d]LEARN! Research Institute for Learning and Education, Faculty of Psychology and Education, VU University, Amsterdam, the Netherlands; [e]AVAG, Amsterdam Public Health Research Institute, Midwifery Science, Amsterdam UMC location Vrije Universiteit, Amstel Academie, Amsterdam, The Netherlands; [f]Department of Obstetrics and Gynecology, Gødstrup Hospital, Denmark; [g]Quality of Care, Amsterdam Public Health, Amsterdam, The Netherlands; [h]Athena Institute, Vrije Universiteit, Amsterdam, The Netherlands

ABSTRACT

Dedicated Interprofessional Training Units (ITUs) in hospital wards are one way to prepare healthcare students for Interprofessional patient-centered care. Based on theoretical foundations, research, and our lived experiences of successes as well as failures, we propose 12 tips on how to prepare, implement, and sustain a dedicated ITU, combining the Grol & Wensing model for planning change with the Self-determination Theory of motivation. Start with a steering group, with a dedicated project leader, to translate awareness of the need for an ITU into wider awareness and motivation among stakeholders, with the ITU being a solution to authentic problems. Create shared ownership by jointly formulating feasible educational goals and starting with a pilot to provide opportunities for change. Motivate all stakeholders by stimulating their autonomy, interprofessional competence as well as relatedness to each other, in line with the Self-determination Theory. Confirm the value of the ITU at all stages and embed the ITU in the organizational strategy.

KEYWORDS

Interprofessional education; interprofessional training unit; design; implementation; sustenance; change model; self-determination theory

Introduction

Healthcare students with different professional backgrounds still receive most of their undergraduate education within their own silos, while often sharing the same work environment during rotations in hospital wards. One way to prepare healthcare students for Interprofessional patient-centered care is within dedicated Interprofessional Training Units (ITUs) in hospital wards, where students from two or more professions learn with, from, and about each other to enable effective collaboration and improve health outcomes (WHO 2010). Research shows a positive impact of educational interventions by Interprofessional Education (IPE) programs in various disciplines of healthcare, including ITUs (Reeves et al. 2016; Guraya and Barr 2018; Oosterom et al. 2019; Straub and Bode 2019; Mette et al. 2021). Implementation of formal and informal learning activities stimulate interprofessional learning (Hamoen et al. 2021), and ITU placements can be structured to maximize opportunities for students to achieve specific interprofessional competencies (Nisbet et al. 2016). Less is known about how to implement and sustain these training units. In a qualitative metasynthesis of challenges to interprofessional placements the authors suggested these placements would benefit from explicit connections with educational and change management theories (O'Leary et al. 2019). A model for planning change (Grol et al. 2007) offers an organizational change framework for building knowledge that can assist in implementing and sustaining an ITU. We combined this model with a motivation theory, the Self Determination Theory (SDT) (Ryan and Deci 2000), with specific attention to motivating all ITU stakeholders. According to the SDT, the fulfillment of the three basic psychological needs, autonomy, competence and relatedness, supports stakeholders' autonomous forms of motivation (Kusurkar 2023). The twelve tips presented in this paper are based on literature as well as the authors' collective experiences, including successes as well as failures, over the last seven years in developing, implementing and sustaining an ITU on the maternity ward in a Dutch hospital. Table 1 depicts an overview of the stages, goals and strategies in implementing and sustaining an ITU on a hospital ward.

Stage 1 – Orientation

Tip 1

Translate personal awareness of need for IPE into wider awareness and motivation of stakeholders

Educators that already see the need for IPE for students during clinical placements can translate their awareness of this need into a wider awareness among stakeholders (de

CONTACT Saskia C. M. Oosterbaan-Lodder s.oosterbaan@olvg.nl Teaching Hospital Department, OLVG Hospital, Teaching Hospital OLVG, P.O. Box 9243, Amsterdam, 1006 AE, The Netherlands

Supplemental data for this article can be accessed online at https://doi.org/10.1080/0142159X.2023.2252591.

Table 1. Stages in implementing and sustaining an ITU, based on a model for the process of change (Grol and Wensing 2004).

Stages of ITU implementation	Implementation goals	Implementation strategies
Orientation	1. Create awareness of need for IPE	Tip 1: Translate personal awareness of need for IPE into wider awareness and motivation of stakeholders
		Tip 2 : Appoint a project leader
	2. Stimulate interest in developing plans for ITU	Tip 3: Organize informative meetings involving all stakeholders, positioning the need for an ITU as solution to problems
Insight	3. Increase knowledge about possibility and feasibility of ITU	Tip 4: Stay connected with best practices elsewhere to boost next stages of implementation
		Tip 5: Once stakeholders express their positive intent for an ITU, discuss possible organizational barriers and solutions.
	4. Develop insight into converting normal routines into ITU routines	Tip 6: Create shared ownership by formulating unified goals and design, involving all ITU stakeholders
Acceptance	5. Develop positive attitudes and motivation for ITU	Tip 7: Provide IPE tutors with formal training to enhance competence for their role
	6. Confirm intention and decision for ITU implementation	Tip 8: Establish prototype ITU placement to enhance stakeholders' motivation
Change	7. Implement ITU in one ward	Tip 9: Start with a pilot
	8. Confirm the value of ITU implementation	Tip 10: Confirm value of the ITU, make inventory of bottlenecks and provide necessary adjustments
Preservation of Change	9. Integrate ITU practice into routines	Tip 11: Adapt to organizational needs and changes
	10. Anchor ITU into the organization	Tip 12: Create diverse educator networks and embed practice-based IPE in organizational strategy

Vries-Erich et al. 2017). In our case, some educators from different professions, looking for opportunities for an ITU, met at a meeting of the Netherlands Association of Medical Education (NVMO). Prompted by recent inclusion of IPE in nationwide medical, midwifery and nursing education frameworks, they formed a steering group with delegates of the midwifery academy, nurses, midwives, gynecologist and pediatricians, clinical teachers, and management to discuss the possibilities of an ITU on the maternity ward. This steering group, inspired by results from ITUs in Sweden and Denmark (Jakobsen et al. 2011; Jakobsen and Hansen 2014; Jakobsen 2016), subsequently visited ITUs on an internal medicine ward in the Netherlands and on a maternity ward in Denmark. These visits enhanced motivation of the steering group members to be IPE change agents, by creating relatedness between them and feelings of competence for the plan ahead, in accordance with the SDT (Ryan and Deci 2020).

Tip 2

Appoint a project leader

In line with research on barriers and facilitators influencing IPE implementation (Lawlis et al. 2014; de Vries-Erich et al. 2017), we recommend that the steering group appoints a project leader to serve as a bridge between the steering group, teaching faculty from the different professions, management and allied healthcare organizations. By being knowledgeable in content-related areas, this project leader can: (a) enhance the next steps of implementation, even when representatives from management and hospital wards change, and (b) coordinate ITUs on other wards within the organization by enhancing the buy-in of stakeholders.

Tip 3

Organize informative meetings involving all stakeholders, positioning the need for an ITU as a solution to problems

Steering group members need to position the ITU as a solution to stakeholders' most important problems. In our case, stakeholders agreed that patient-centered care on the ward could be improved by providing patients with non-conflicting information from different professionals involved in their care. Furthermore, steering group members need to identify other arising needs and concerns among stakeholders. In our case, stakeholders wanted to know evidenced-based patient outcomes of IPE. The research findings we provided indicated that, as compared to controls, patients that were treated by supervised interprofessional student teams perceived a higher quality of care with no signs of disadvantages (Hallin et al. 2011; O'Leary et al. 2020; Jakobsen et al. 2021). Also, some pediatricians were hesitant at first as to what would be the revenue of the ITU on a maternity ward for medical students during their pediatrics rotation. However, medical students themselves confirmed that they were looking forward to learning more practical skills from midwifery and nursing students in caring for women and their newborns. Nursing and midwifery students expected the ITU to enhance their clinical reasoning skills. This information helped stakeholders to further support the ITU. In hindsight, we could have involved patients more in this orientation stage of ITU implementation, as to how the ITU could be a solution to their needs concerning interprofessional collaboration and education in our specific context. This could have provided the steering group with insight into problems the ITU could solve.

Stage 2 – Insight

Tip 4

Stay connected with best practices elsewhere to boost next stages of implementation

Visiting national or international hospitals with best practice ITUs can boost next stages of implementation. In our case, in collaboration with experienced educators from the ITU in Denmark, we designed a three-hour training for initial tutors, management and administrators involved in the ITU. An experienced nursing and midwifery tutor from Denmark provided tutor-training on the job in the first week of the ITU in Amsterdam. This visit also enhanced peer-contact on the management and tutor levels, opening

up opportunities for long-term inspiration and cooperation. Similarly, this increased feelings of competence as well as relatedness of local stakeholders, as per SDT (Ryan and Deci 2000),

Tip 5

Once stakeholders express their positive intent for an ITU, discuss possible organizational barriers and solutions

Discuss organizational barriers and solutions with stakeholders concerning:

a. *Students* – Link the ITU placement to the different curricula of the students, matching maturity, theoretical and practical knowledge. Furthermore, to simplify organizational aspects, consider placing students in the ITU that are already present in the hospital during clinical rotations. Have administrators schedule students as a mandatory part of their clinical rotation, with a duration that is reasonable according to duration of students internships and patient admission duration. Aim for interprofessional 'immersion,' by enhancing the process of acquiring the core competencies of students' professions, next to developing a sense of themselves as interprofessional practitioners (Charles et al. 2010; Maddock et al. 2023).
b. *Tutors* – Select tutors from healthcare professionals that provide patient care in the current situation, because they are readily available to guide the ITU students (Hallin and Kiessling 2016). Encourage students to consult others if necessary.
c. *Selection of patients* – Make tutors responsible for selecting patients for the ITU that represent the work reality and demands of the different student professions. Develop inclusion and exclusion criteria for ITU patients with all stakeholders through consensus, along with developing patient information of the ITU.
d. *Funding* – Try to obtain an innovation grant for staff development of the first wave of tutors, next to applying for student training fees.

Tip 6

Create shared ownership by formulating unified educational goals and design, involving all ITU stakeholders

For successful implementation it is important to create shared ownership and formulate unified goals by involving all stakeholders in the ITU design (Lawlis et al. 2014). ITU placement needs to provide *intra*professional learning, including discipline specific knowledge and clinical skills (Oosterom et al. 2019), as well as *inter*professional learning focused on four core IPEC competencies ((IPEC) 2016; van Diggele et al. 2020):

a. *Roles and responsibilities for collaborative practice* – Make students responsible for jointly proposing and carrying out interprofessional care plans as this stimulates problem-based interprofessional learning (Dreier-Wolfgramm et al. 2018; Aein et al. 2020), and students' autonomous motivation for interprofessional learning and collaboration (Visser et al. 2019).
b. *Values/ethics for interprofessional practice*—Stimulate students to inquire about patients' values and expectations, and to reflect on their own professional values in patientcare;
c. *Interprofessional communication practices*—Let students reflect on how different professions tend to communicate in different ways. To enhance communication, students can be encouraged to use the SBAR (Situation, Background, Assessment, Recommendation) tool (Maddock et al. 2023).
d. *Interprofessional teamwork and teamwork-based practices* – Provide students with a safe space for interacting with and learning from and with each other, in order to enhance teamwork (Hallin and Kiessling 2016).

Create opportunities for feedback and reflection by peers and tutors on aforementioned competencies and non-clinical learning outcomes, to enhance understanding on how professionals see themselves and others (Clark 2009; Maddock et al. 2023).

Stage 3 – Acceptance

Tip 7

Provide tutors with formal training to enhance competence for their role

Although healthcare professionals are used to guiding students within their own profession, it is important to prepare them for their new role as tutors within an ITU. Provide them with formal training to promote the *intra*professional and *inter*professional learning process of students (Bodenheimer and Sinsky 2014; Kent et al. 2017), while 'winning tutors' hearts and minds' (Anderson et al. 2011) and creating shared ownership. To enhance motivation for their new role tutors, we suggest the following key-elements:

a. *Power of getting acquainted* — Since relatedness to others is one of the prerequisites for workplace-based motivation (Ryan and Deci 2000; Ten Cate et al. 2011; van der Burgt et al. 2021), organize introduction of the tutors to each other, including their experiences in guiding students and needs for their new role.
b. *Details of roles and responsibilities of students and tutors*—Provide tutors with a detailed overview of the group of students, position of the ITU in their curricula, and roles and responsibilities of students and tutors. Include a timeline of each day and the whole placement.
c. *Scaffolding students' learning* – Provide tutors with the means to feel competent in their new role. While there is a range of theoretical models that can be used to attain this goal (O'Leary et al. 2019), we suggest the following ones: Train tutors how to scaffold metacognitive, cognitive as well as affective aspects of students' learning. They can do this by seeing themselves as 'guide on the side,' providing hints to activate the groups' thinking, and by instructing, explaining and modelling key behaviors. By eliciting answers from the students rather than giving answers themselves they promote development of students' interprofessional problem solving and clinical reasoning skills (Van de Pol et al. 2010; van Diggele et al. 2020; Visser et al. 2020). Furthermore, we recommend tutors to encourage students to begin with the patients' needs, apply clinical guidelines they use within their profession,

define each profession's focus areas, and then guide them to learn with, from and about each other, in accordance with the pedagogical approach of Problem Based Learning (Aldriwesh et al. 2022; Phelan et al. 2022). By explaining the different stages in group formation (Tuckman and Jensen 1977) we encourage tutors to recognize the stage the student groups are at and guide them accordingly.

d. *Give feedback to students from different professions*; encourage tutors to inform themselves with the personal learning objectives of the students at the beginning of the day. This enables them to ensure that learning opportunities, feedback and reflection, and outcomes for the students are aligned (Biggs 1996). By playing out some student behavior scenarios, tutors can be stimulated to use Leary's Rose (Susilo et al. 2013) to move students' behavior towards more collaboration in patient care.

Tip 8

Establish prototype ITU placement to enhance stakeholders' motivation

After a final round of input from stakeholders and tutors that participated in the initial tutor training, establish a prototype for the ITU placement, with well-defined responsibilities for students and tutors. Appendix 1 depicts our prototype for the ITU (supplementary material).

To motivate students, as well as tutors, for interprofessional collaboration, prepare them thoroughly for learning and working on the ITU in line with SDT. To enhance student's feelings of *competence* during the placement, inform them before the placement about the logistics, learning objectives and their roles and tasks on the ITU. Organize for the students to introduce themselves, and explain their learning goals to each other and the tutors. This contributes to their feeling of *relatedness* within the team. Also organize students to collaborate in dyads, so that they become aware of the strengths and weaknesses of their own profession. Their different perspectives on the patients' course of treatment can lead to a more holistic understanding of patient care (Hansen et al. 2020). Assign patients to the students that mirror the amount of work and the complexity they can handle (Vygotsky and Cole 1978). In our case, the students took care of 4 women and their newborns. During patient care meetings, provide students with the opportunity to be in the lead, in letting them provide information about the patients and proposing the policy for their treatment, enhancing their feeling of responsibility or *autonomy*. As students experience their ability to successfully collaborate in patientcare, their feeling of *competence* are enhanced. Provide students and tutors to work closely together in an ITU, to facilitate mutual relationships, leading to feelings of *relatedness* (Visser et al. 2020; Martin and Sy 2021)

Stage 4 – Change

Tip 9

Start with a pilot

Start with a pilot to prove viability of the project. This enables stakeholders to manage the risk of this innovation and identify deficiencies before committing substantial resources. The emphasis is on evidence of promised outcomes, feasibility of the chosen approach to participants, next to replicability and affordability (Humphrey et al. 2016). In this exploratory stage, the emphasis is on identifying the most important factors which should be explored more systematically at efficacy level. Results from the pilot phase inform further planning, continuous monitoring and adjustment of the ITU on various stakeholder levels, necessary for successful implementation (Flemming Jakobsen & Janet Hansen 2014). In our case, the patient care meeting was moved to a later moment, and the lactation specialist got a more prominent role in guiding the students to support patients' breastfeeding.

Tip 10

Confirm value of the ITU, make inventory of bottlenecks and provide necessary adjustments

To guide possible adaptations, evaluate the ITU weekly with students and tutors in the early stages of implementation. Ask students for feedback, through answering (open-ended) questions about their ITU experience, including reflection on their learning goals. In our case, students informed us that interacting with other students and tutors on the ITU provided them with opportunities to enhance their medical knowledge and clinical reasoning skills. They also reported growth in interprofessional communication and collaboration through intense learning about the roles and responsibilities of the different professions, and by being able to feel responsible for the total care of patients and their newborns (See our evaluation form in Appendix 2, supplementary material).

ITU patients were also asked to provide informal feedback to students and tutors on how they experienced their care. Through keeping a log, it was possible to confirm the value of the ITU for management and other stakeholders and make an inventory of bottlenecks. Information from these evaluations, as well as informal feedback on patient satisfaction was shared during subsequent meetings with the stakeholders. In our case, after six months, we were able to provide students with their own room on the ward, a 'safe space' for learning (Hallin and Kiessling 2016; Nisbet et al. 2016), where the tutors joined during patient care meetings.

Make effort to understand what motivates tutors for their role. In our case, only when some nurses resigned from their role as tutor, we were prompted to study their motivation for the tutor role, which helped us to bring about some changes in the way things were organized (Oosterbaan-Lodder et al. 2023). Specific care was taken for the patient care meeting to take place at a fixed moment every day. In this way, students and tutors were able to engage fully in the interprofessional clinical reasoning, enhancing their motivation (Visser et al. 2019; Oosterbaan-Lodder et al. 2023).

Stage 5 – preservation of change

Tip 11

Adapt to organizational needs and changes

Over the years, it is important to continue to adapt to the needs and availability of tutors, management and

administrators. Because we wanted to start out with the most motivated tutors, we first trained a group of ten nurses and midwives, who volunteered to guide students in the ITU. After a successful pilot phase, we decided to train all the midwives and nurses working on the ward for this role, to facilitate tutor planning and embed their role as IPE tutor into their regular activities. Due to restrictions in availability of tutors during holiday seasons, students were placed within the ITU during 42 weeks per year. Make tutor training mandatory before commencing their new role, to avoid diluting the principles and motivation for guiding students on an ITU (Doll et al. 2018). Arrange for tutors to receive accreditation points for their training. Since tutors are regarded as central in delivering IPE (Lawlis et al. 2014; Reeves, Pelone, et al. 2016; de Vries-Erich et al. 2017) it is important to keep them motivated for this role and to prevent health professional burnout (Bachynsky 2020), especially in the current scenario of scarcity of healthcare professionals (Both-Nwabuwe et al. 2018; Kox et al. 2020). Research on tutor motivation for their role on this ITU showed that in implementing and sustaining ITUs it is important to pay attention to: (a) organizational support of the IPE tutors and (b) secure tutor development opportunities. *Organizational support* occurs when tutors have the option to guide students during several consecutive days. Initial and ongoing staff *development opportunities* also foster autonomous motivation for their role, since it enhances their perceived competence. These opportunities arise during interprofessional clinical reasoning during patient care meetings, and by providing tutors with regular information from patient and student evaluations (Oosterbaan-Lodder et al. 2023). As long-term revenue of the ITU an Interprofessional Collaboration Meeting for the whole ward was implemented. During this daily meeting, also attended by students and tutors, care plans for the maternity women and their newborns are discussed by the midwife, pediatrician and nurses, to improve unambiguous communication and patient-centered care. This expansion satisfied the ambition of the stakeholders for improving Interprofessional collaboration on the entire ward.

Tip 12

Create diverse educator networks and embed practice-based IPE in organizational strategy

To preserve the changes made by implementation of an ITU, it is important to align development and implementation of ITUs with the mission and vision of the teaching department, the hospital and national education plans, synchronizing ambitions of the steering group and all stakeholders (O'Leary et al. 2019). Within our teaching hospital we started an ITU tutor network, with representatives from medical, nursing and midwifery faculty, to discuss how to adapt to changes within the organization.

After the pilot phase we had not been so mindful as to continue to discuss the ITU with all the professionals on the ward. This resulted in an inability to tap into their tacit knowledge, skills and attitudes towards the ITU, put more pressure on the steering group and made the professionals feel excluded from the success of the ITU. We therefore recommend providing the whole department with information on the outcomes of the ITU on patient, student and tutor levels, through informal discussion or more widely through distribution of a newsletter through mail. Likewise, to sustain motivation of the project leader and the steering group, we advise to establish informal and formal partnerships with other hospitals locally, nationally and internationally. Furthermore, this leads to more coordinated and layered ITU leadership during ITU implementation and sustenance, that helps to gain momentum and repositions it from the margins to more centered health professions education (Dunston et al. 2019).

Conclusions

We suggest an organizational change framework to assist the different stages of implementing interprofessional education for healthcare students in the context of an ITU on a hospital ward. When combined with motivating all stakeholders according to SDT, the value of an ITU can be confirmed, and the ITU embedded in the organization. We believe these twelve tips can help healthcare professionals and other stakeholders involved in healthcare education in designing, implementing and sustaining ITUs in different hospital settings.

Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

Funding

This article was funded by the OLVG Scientific Research Foundation, Amsterdam, The Netherlands.

Notes on contributors

Saskia C. M. Oosterbaan-Lodder, MD, certified senior medical educator, researcher and IPE program coordinator at Teaching Hospital OLVG, Amsterdam, the Netherlands. She has a background in pediatrics and youth healthcare.

Joyce Kors, educationalist Midwifery academy Amsterdam/Groningen, PhD student Amsterdam UMC.

Cora L. F. Visser, PhD and educationalist in Nursing Education, Amstel Academie AUMC, Amsterdam.

Birgitte Mørk Kvist, midwife and an educationist of healthcare professionals regarding IPE, IPE project coordinator, Department of Obstetrics and Gynaecology, Gødstrup Hospital, Denmark.

Rashmi A. Kusurkar, MD, PhD, FAMEE, is an expert on SDT, Associate Professor and Research Programme Leader at Research in Education, Amsterdam UMC Faculty of Medicine, location Vrije Universiteit, Amsterdam, the Netherlands.

Fedde Scheele, PhD, MD, is a Professor of Health Systems Innovation and Education at the Amsterdam UMC and at the Athena Institute of the Vrije Universiteit Amsterdam, the Netherlands. He practices as a gynaecologist and is a certified trainer for pre- and postgraduate clinical education.

ORCID

Saskia C. M. Oosterbaan-Lodder http://orcid.org/0000-0002-0071-8755
Joyce Kors http://orcid.org/0000-0001-6642-4170
Cora L. F. Visser http://orcid.org/0000-0001-9694-6869
Birgitte Mørk Kvist http://orcid.org/0009-0001-7518-5826
Rashmi A. Kusurkar http://orcid.org/0000-0002-9382-0379
Fedde Scheele http://orcid.org/0000-0001-9593-257X

References

Aein F, Hosseini R, Naseh L, Safdari F, Banaian S. 2020. The effect of problem-solving-based interprofessional learning on critical thinking and satisfaction with learning of nursing and midwifery students. J Educ Health Promot. 9(1):109. doi: 10.4103/jehp.jehp_640_19.

Aldriwesh MG, Alyousif SM, Alharbi NS. 2022. Undergraduate-level teaching and learning approaches for interprofessional education in the health professions: a systematic review. BMC Med Educ. 22(1): 13. doi: 10.1186/s12909-021-03073-0.

Anderson ES, Thorpe LN, Hammick M. 2011. Interprofessional staff development: changing attitudes and winning hearts and minds. J Interprof Care. 25(1):11–17. doi: 10.3109/13561821003721311.

Bachynsky N. 2020. Implications for policy: the Triple Aim, Quadruple Aim, and interprofessional collaboration. Nurs Forum. 55(1):54–64. doi: 10.1111/nuf.12382.

Biggs J. 1996. Enhancing teaching through constructive alignment. High Educ. 32(3):347–364. doi: 10.1007/BF00138871.

Bodenheimer T, Sinsky C. 2014. From triple to quadruple aim: care of the patient requires care of the provider. Ann Fam Med. 12(6):573–576. doi: 10.1370/afm.1713.

Both-Nwabuwe JM, Dijkstra MT, Klink A, Beersma B. 2018. Maldistribution or scarcity of nurses? The devil is in the detail. J Nurs Manag. 26(2):86–93. doi: 10.1111/jonm.12531.

Charles G, Bainbridge L, Gilbert J. 2010. The University of British Columbia model of interprofessional education. J Interprof Care. 24(1):9–18. doi: 10.3109/13561820903294549.

Clark PG. 2009. Reflecting on reflection in interprofessional education: implications for theory and practice. J Interprof Care. 23(3):213–223. doi: 10.1080/13561820902877195.

de Vries-Erich J, Reuchlin K, de Maaijer P, van de Ridder JM. 2017. Identifying facilitators and barriers for implementation of interprofessional education: perspectives from medical educators in the Netherlands. J Interprof Care. 31(2):170–174. doi: 10.1080/13561820.2016.1261099.

Doll J, Maio A, Potthoff M. 2018. Epic failure: lessons learned from interprofessional faculty development. Perspect Med Educ. 7(6): 408–411. doi: 10.1007/s40037-018-0488-8.

Dreier-Wolfgramm A, Homeyer S, Oppermann RF, Hoffmann W. 2018. A model of interprofessional problem-based learning for medical and nursing students: implementation, evaluation and implications for future implementation. GMS J Med Educ. 35(1):Doc13. 10.3205/zma001160.

Dunston R, Forman D, Thistlethwaite J, Steketee C, Rogers GD, Moran M. 2019. Repositioning interprofessional education from the margins to the centre of Australian health professional education – what is required? Aust Health Rev. 43(2):224–229. doi: 10.1071/ah17081.

Grol RP, Bosch MC, Hulscher ME, Eccles MP, Wensing M. 2007. Planning and studying improvement in patient care: the use of theoretical perspectives. Milbank Q. 85(1):93–138. doi: 10.1111/j.1468-0009.2007.00478.x.

Guraya SY, Barr H. 2018. The effectiveness of interprofessional education in healthcare: a systematic review and meta-analysis. Kaohsiung J Med Sci. 34(3):160–165. doi: 10.1016/j.kjms.2017.12.009.

Hallin K, Henriksson P, Dalén N, Kiessling A. 2011. Effects of interprofessional education on patient perceived quality of care. Med Teach. 33(1):e22–e26. doi: 10.3109/0142159x.2011.530314.

Hallin K, Kiessling A. 2016. A safe place with space for learning: experiences from an interprofessional training ward. J Interprof Care. 30(2):141–148. doi: 10.3109/13561820.2015.1113164.

Hamoen EC, van Blankenstein FM, de Jong PG, Ray A, Reinders ME. 2021. Development of a clinical teaching unit in internal medicine to promote interprofessional and multidisciplinary learning: a practical intervention. Teach Learn Med. 33(1):78–88. doi: 10.1080/10401334.2020.1792309.

Hansen TB, Pape B, Thiesen PS, Jakobsen F. 2020. Interprofessional versus uniprofessional dyad learning for medical students in a clinical setting. Int J Med Educ. 11:191–200. doi: 10.5116/ijme.5f50.bc76.

Humphrey N, Lendrum A, Ashworth E, Frearson K, Buck R, Kerr K. 2016. Implementation and process evaluation (IPE) for interventions in education settings: an introductory handbook, p. 21–24. Education Endowment Foundation.

(IPEC), I. E. C. 2016, 2016). *Core Competencies for Interprofessional Collaborative Practice: 2016 Update*.

Jakobsen F. 2016. An overview of pedagogy and organization in clinical interprofessional training units in Sweden and Denmark. J Interprof Care. 30(2):156–164. doi: 10.3109/13561820.2015.1110690.

Jakobsen F, Glassou EN, Kirkeby L, Hansen TB. 2021. Patients' experiences of being treated by an interprofessional student team compared with uniprofessional treatment by residents supported by nurses: a case study. J Interprof Care. 35(4):546–551. doi: 10.1080/13561820.2020.1763276.

Jakobsen F, Hansen J. 2014. Spreading the concept: an attempt to translate an interprofessional clinical placement across a Danish hospital. J Interprof Care. 28(5):407–412. doi: 10.3109/13561820.2014.900479.

Jakobsen F, Hansen TB, Eika B. 2011. Knowing more about the other professions clarified my own profession. J Interprof Care. 25(6):441–446. doi: 10.3109/13561820.2011.595849.

Kent F, Hayes J, Glass S, Rees CE. 2017. Pre-registration interprofessional clinical education in the workplace: a realist review. Med Educ. 51(9):903–917. doi: 10.1111/medu.13346.

Kox J, Groenewoud JH, Bakker EJM, Bierma-Zeinstra SMA, Runhaar J, Miedema HS, Roelofs P. 2020. Reasons why Dutch novice nurses leave nursing: a qualitative approach. Nurse Educ Pract. 47:102848. doi: 10.1016/j.nepr.2020.102848.

Kusurkar RA. 2023. Self-determination theory in health professions education research and practice. In: D. E. L. Ryan RM, editor. The handbook of self-determination theory. Oxford: Oxford University Press; p. 665–683.

Lawlis TR, Anson J, Greenfield D. 2014. Barriers and enablers that influence sustainable interprofessional education: a literature review. J Interprof Care. 28(4):305–310. doi: 10.3109/13561820.2014.895977.

Maddock B, Dārziņš P, Kent F. 2023. Realist review of interprofessional education for health care students: what works for whom and why. J Interprof Care. 37(2):173–186. doi: 10.1080/13561820.2022.2039105.

Martin P, Sy M. 2021. Twelve tips to facilitate interprofessional education and collaborative practice with students on placements in healthcare settings. J Pract Teach Learn. 18(3):1740. doi: 10.1921/jpts.v18i3.1740.

Mette M, Baur C, Hinrichs J, Narciß E. 2021. Gaining interprofessional knowledge and interprofessional competence on a training ward. Med Teach. 43(5):583–589. doi: 10.1080/0142159x.2021.1885638.

Nisbet G, O'Keefe M, Henderson A. 2016. Twelve tips for structuring student placements to achieve interprofessional learning outcomes. MedEdPublish. 5(109):109. doi: 10.15694/mep.2016.000109.

O'Leary N, Salmon N, Clifford A, O'Donoghue M, Reeves S. 2019. Bumping along': a qualitative metasynthesis of challenges to interprofessional placements. Med Educ. 53(9):903–915. doi: 10.1111/medu.13891.

O'Leary N, Salmon N, Clifford AM. 2020. It benefits patient care': the value of practice-based IPE in healthcare curriculums. BMC Med Educ. 20(1):424. doi: 10.1186/s12909-020-02356-2.

Oosterbaan-Lodder SCM, Kortekaas LS, Scheele F, Kusurkar RA. 2023. What keeps the flame burning? A qualitative study on tutor motivation to guide students in interprofessional education. J Interprofessional Educ Pract. 32:100652. doi: 10.1016/j.xjep.2023.100652.

Oosterom N, Floren LC, Ten Cate O, Westerveld HE. 2019. A review of interprofessional training wards: enhancing student learning and patient outcomes. Med Teach. 41(5):547–554. doi: 10.1080/0142159x.2018.1503410.

Phelan D, Barrett T, Lennon O. 2022. Does interprofessional problem-based learning (ipbl) develop health professional students' interprofessional competences? A systematic review of contexts, mechanisms and outcomes. Interdiscip J Probl.-based Learn. 16(1):31647. doi: 10.14434/ijpbl.v16i1.31647.

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. Med Teach. 38(7): 656–668. doi: 10.3109/0142159x.2016.1173663.

Reeves S, Pelone F, Hendry J, Lock N, Marshall J, Pillay L, Wood R. 2016. Using a meta-ethnographic approach to explore the nature of facilitation and teaching approaches employed in interprofessional education. Med Teach. 38(12):1221–1228. doi: 10.1080/0142159x.2016.1210114.

Ryan RM, Deci EL. 2000. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. Am Psychol. 55(1):68–78. doi: 10.1037//0003-066x.55.1.68.

Ryan RM, Deci EL. 2020. Intrinsic and extrinsic motivation from a self-determination theory perspective: definitions, theory, practices, and future directions. Contemp Educ Psychol. 61:101860. doi: 10.1016/j.cedpsych.2020.101860.

Straub C, Bode SFN. 2019. Patients' and parents' percetion of care on a paediatric interprofessional training ward. BMC Med Educ. 19(1):374. doi: 10.1186/s12909-019-1813-6.

Susilo A, Eertwegh V, Dalen J, Scherpbier A. 2013. Leary's rose to improve negotiation skills among health professionals: experiences from a Southeast Asian culture . Educ Health. 26(1):54–59. doi: 10.4103/1357-6283.112803.

Ten Cate TJ, Kusurkar RA, Williams GC. 2011. How self-determination theory can assist our understanding of the teaching and learning processes in medical education. AMEE guide No. 59. Med Teach. 33(12):961–973. doi: 10.3109/0142159x.2011.595435.

Tuckman BW, Jensen MAC. 1977. Stages of small-group development revisited. Group & Organization Studies,. 2(4):419–427. doi: 10.1177/105960117700200404.

Van de Pol J, Volman M, Beishuizen J. 2010. Scaffolding in teacher–student interaction: a decade of research. Educ Psychol Rev. 22(3):271–296. doi: 10.1007/s10648-010-9127-6.

van der Burgt S, de la Croix A, Croiset G, Broekman M, Peerdeman S, Kusurkar R. 2021. Do medical specialists cope with stressors through fulfillment of basic psychological needs of self-determination theory. Int J Med Educ. 12:245–256. doi: 10.5116/ijme.618a.463c.

van Diggele C, Roberts C, Burgess A, Mellis C. 2020. Interprofessional education: tips for design and implementation. BMC Med Educ. 20(S2):455. doi: 10.1186/s12909-020-02286-z.

Visser CLF, Kusurkar RA, Croiset G, Ten Cate O, Westerveld HE. 2019. Students' motivation for interprofessional collaboration after their experience on an IPE ward: a qualitative analysis framed by self-determination theory. Med Teach. 41(1):44–52. doi: 10.1080/0142159x.2018.1436759.

Visser CLF, Wouters A, Croiset G, Kusurkar RA. 2020. Scaffolding clinical reasoning of health care students: a qualitative exploration of clinicians' perceptions on an interprofessional obstetric ward. J Med Educ Curric Dev. 7:2382120520907915. doi: 10.1177/2382120520907915.

Vygotsky LS, Cole M. 1978. Mind in society: development of higher psychological processes. Cambridge, MA: Harvard University Press.

WHO. 2010. Framework for action on interprofessional education and collaborative practice; WHO reference number WHO/HRH/HPN/10.3