



Twelve tips to virtually operationalize co-creation of educational design

Muhammad Zafar Iqbal, Shireen Suliman, Raghdah Al-Bualy, Juliëtte Anna Beuken, Daniel C. Rainkie, Astrid Pratidina Susilo, Michelle J. H. Verheijden, Jill Ronald Diane Whittingham & Karen D. Könings

To cite this article: Muhammad Zafar Iqbal, Shireen Suliman, Raghdah Al-Bualy, Juliëtte Anna Beuken, Daniel C. Rainkie, Astrid Pratidina Susilo, Michelle J. H. Verheijden, Jill Ronald Diane Whittingham & Karen D. Könings (15 Mar 2024): Twelve tips to virtually operationalize co-creation of educational design, Medical Teacher, DOI: [10.1080/0142159X.2024.2327483](https://doi.org/10.1080/0142159X.2024.2327483)

To link to this article: <https://doi.org/10.1080/0142159X.2024.2327483>



Published online: 15 Mar 2024.



Submit your article to this journal [↗](#)











View related articles [↗](#)



View Crossmark data [↗](#)

Twelve tips to virtually operationalize co-creation of educational design

Muhammad Zafar Iqbal^{a*} , Shireen Suliman^{b,c*} , Raghdah Al-Bualy^{c,d} , Juliëtte Anna Beuken^e , Daniel C. Rainkie^{c,f} , Astrid Pratidina Susilo^g , Michelle J. H. Verheijden^h , Jill Ronald Diane Whittinghamⁱ and Karen D. Könings^{e,j} 

^aResearch Department, Acuity Insights, Toronto, Ontario, Canada; ^bMedicine Department, Hamad Medical Corporation, Doha, Qatar; ^cSchool of Health Professions Education, Maastricht University, Maastricht, The Netherlands; ^dGraduate Medical Education Department, Oman Medical Specialty Board, Muscat, Sultanate of Oman; ^eSchool of Health Professions Education, Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht, The Netherlands; ^fCollege of Pharmacy, Faculty of Health, Dalhousie University, Halifax, Nova Scotia, Canada; ^gDepartment of Medical Education and Bioethics, Faculty of Medicine, Universitas Surabaya, Surabaya, Indonesia; ^hDepartment of Family Medicine, Care and Public Health Research Institute (CAPHRI), School of Health Professions Educations, Maastricht University, Maastricht, The Netherlands; ⁱFaculty of Health Medicine and Life Sciences, Maastricht University, Maastricht, The Netherlands; ^jSchool of Health Sciences, University of East Anglia, East Anglia, UK

ABSTRACT

Co-creation is the active involvement of all stakeholders, including students, in educational design processes to improve the quality of education by embodying inclusivity, transparency and empowerment. Virtual co-creation has the potential to expand the utility of co-creation as an inclusive approach by overcoming challenges regarding the practicality and availability of stakeholders, typically experienced in face-to-face co-creation. Drawing from the literature and our experiences of virtual co-creation activities in different educational contexts, this twelve tips paper provides guidelines on how to effectively operationalize co-creation in a virtual setting. Our proposed three-phased approach (preparation, conduction, follow-up) might help those aiming to virtually co-create courses and programs by involving stakeholders beyond institutes and across borders.

ARTICLE HISTORY

Received 17 July 2023
Accepted 4 March 2024

KEYWORDS


Co-creation; student engagement; virtual setting; instructional design; student support; collaborative/peer-to-peer; e-learning/computers; curriculum planning

Introduction

The active involvement of students in designing education courses and programs is gaining momentum in medical education (Könings et al. 2021; Kassab et al. 2022). The collaborative process through which students (undergraduate and/or postgraduate), teachers and other stakeholders (e.g. administrators, program developers) design courses and educational programs is known as co-creation (Bovill et al. 2016; Martens et al. 2019). The rationale behind actively engaging students in the co-creation of educational design is to empower them by giving voice to their opinions while contributing to important decisions about their course of learning. This equality-based student-staff partnership in educational design offers multiple benefits to the students, the program, and the educational institute (Cook-Sather 2014; Könings et al. 2014; Könings and McKenney 2017). For instance, students show increased satisfaction and motivation to learn, better engagement and improved learning experiences, leading to an overall improvement in program outcomes (Könings et al. 2011; Barradell and Bell 2021). The inclusion of students as partners is also a powerful way to develop their teamwork, critical thinking, innovation, and agency (Kassab et al. 2022). However, establishing an inclusive and diverse co-creation approach is both critical and practically challenging, particularly when operationalized across different education levels, programs, institutions, and borders. Virtual co-creation has the potential of bringing together important stakeholders in the

educational design process by overcoming organizational challenges, removing travel barriers, and increasing time efficiency.

Co-creation is inherently process-orientated and the dynamics that lead to the meaningful involvement of students in educational design processes play a key role in its success (Suliman et al. 2023a). Therefore, the virtual co-creation process demands careful planning and execution to accommodate stakeholders with different perceptions, educational backgrounds, and experiences, and to establish a safe, nurturing environment for effective interaction and exchange of ideas between participants. With growing focus on student engagement, recent scholarship has provided useful tips to conduct face-to-face co-creation of education (Könings et al. 2021), co-produce online learning *via* learning technologists (Jumat et al. 2023) and engage students in online teaching and learning activities (Khan et al. 2021; Malik and Malik 2021; Goshtasbpour et al. 2021; Kassab et al. 2022). However, practical tips that can guide the operationalization of a virtual co-creation process remain deficient in the literature. In this twelve tips paper, we draw from our experiences of virtual co-creation activities in different educational contexts as well as the adjacent literature to provide practical tips for the co-creation of courses and programs in an online setting. We divide the twelve tips (summarized in Figure 1) into three broad phases of the co-creation process: preparation phase, conduction phase, and follow-up phase.

CONTACT Karen D. Könings  kd.konings@maastrichtuniversity.nl  School of Health Professions Education, Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht, The Netherlands.

On behalf of the members of the SIG 'Co-creation and Educational Change'

*Both authors contributed equally.

Preparation phase

Tip 1

Adopt an inclusive approach in selecting co-creators

Adopting an inclusive approach to engage a diverse group of co-creators is much more convenient in virtual co-creation than its face-to-face modality, because it saves co-creators time and hassle by avoiding travelling, offers flexible scheduling, and requires minimal resources. Participants from different education levels, cultural backgrounds, genders, schools, and countries can be easily recruited to form a diverse group of co-creators due to the flexibility and convenience offered by the virtual platform. For example, to co-create a pain management course, you could choose university teachers with teaching expertise in pain pathophysiology and management, clinicians providing pain management services, patient representatives, program developers with experience in course designing, and undergraduate and postgraduate students with a learning experience in pain management. Recruitment on a voluntary basis is recommended (Cook-Sather and Luz 2015; Jensen and Bennett 2016) and seems even more important in virtual co-creation as participants may be 'present' but may not adequately interact with each other (Dong et al. 2021), resulting in reluctance, dissociation and/or distraction. Potential co-creators' willingness to invest time and effort in co-creation could be explored by conducting a short (online) survey during recruitment.

Tip 2

Confirm digital operational skills proficiency of the co-creators

Indeed, virtual co-creation of education is a flexible and accommodating approach. However, given the diverse group of participants in co-creation, it is quite possible that the participants might not be familiar or well-versed with the tools and applications that you are planning to use in co-creation activities. So, keep yourself flexible to accommodate everyone's technical skills and support engagement. Appropriate training and support for both teachers and students have been found valuable to streamline conversations and activities during the sessions (Iqbal et al. 2023; Suliman et al. 2023a). It is also important to ensure that technical support is available to address any potential challenges that may arise during the sessions.

Tip 3

Prepare a detailed and realistic agenda for the co-creation activity

Managing a virtual collaborative activity is challenging because improvisation is more difficult in virtual sessions as compared to face-to-face sessions. You might miss non-verbal cues on whether the co-creation discussions have saturated or need more time. Also, it is harder to keep track of discussions

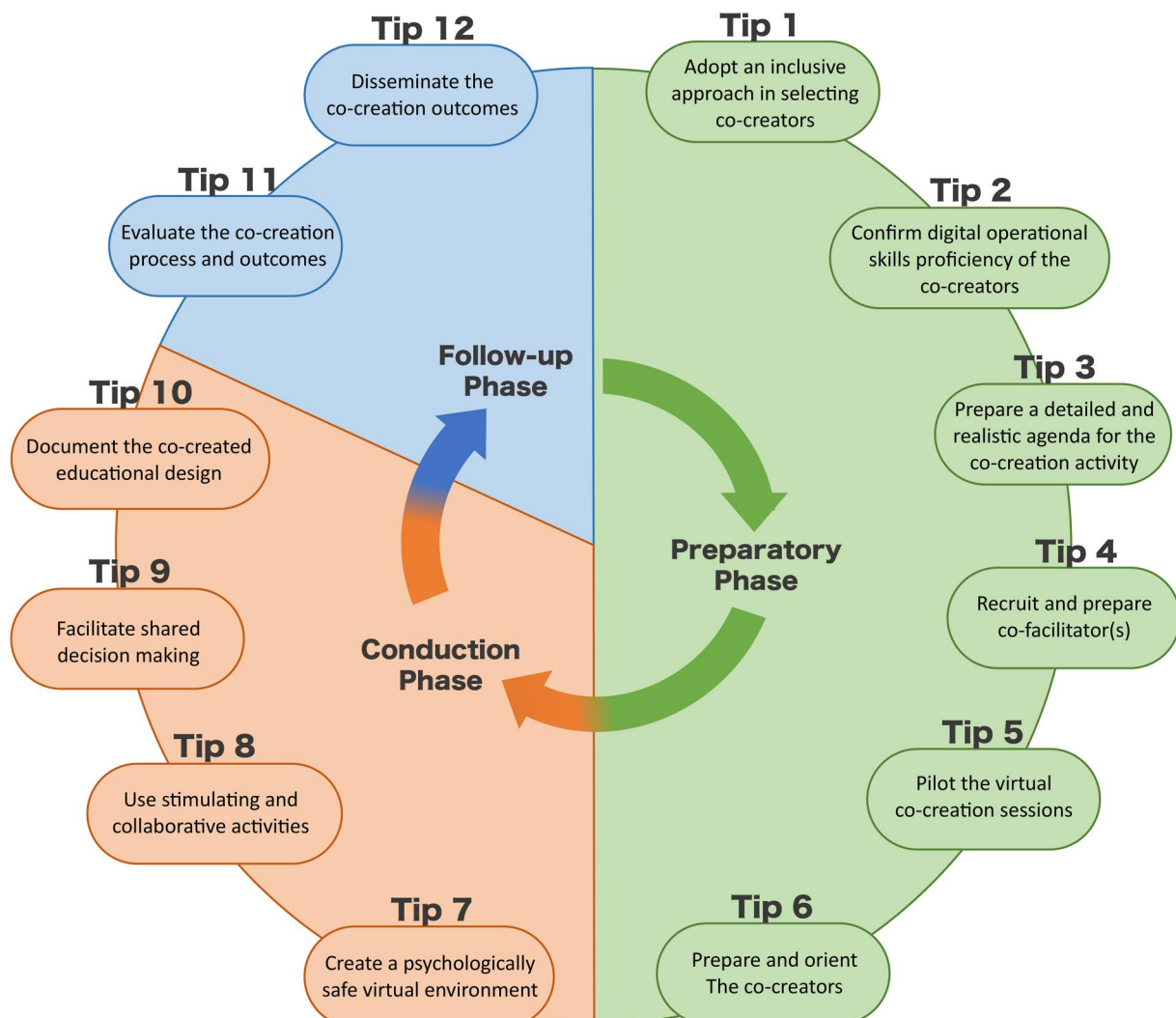


Figure 1. Twelve tips to virtually operationalize co-creation of educational design.

happening in different subgroups/break-out rooms (Jeong and Chiu 2020). Therefore, preparing a realistic agenda containing a detailed guide for the discussion and/or activities is vital for successful virtual co-creation. In our experience, developing a detailed, step-by-step guide of the planned co-creation activities and a set of questions helps in steering discussions. You could also prepare stimulating assignments using online tools (e.g. Google Docs, Padlet, Miro board) to support activities for individual reflective tasks or online note-taking in subgroups. To ensure that parallel co-creation activities are well aligned, detailed planning is also required when multiple facilitators are guiding discussions in different subgroups. A detailed plan includes preparing tasks for the participants, tools to be used, slides to be presented, realistic schedule to be followed, and assigning roles to the facilitators.

Tip 4

Recruit and prepare co-facilitator(s)

In cases of a larger group or big co-creation projects, you will have to break down the group into sub-groups for activities and discussions at a micro level, which will require multiple facilitators to moderate parallel discussion sessions in separate virtual rooms. It is important to prepare facilitators for their proposed roles in the co-creation, familiarize them with the activity guide, and provide them with clear instructions (Thorpe 2016). Examples include guidance on breaking the ice and grabbing the attention of the participants in moments when the conversation gets stale. In order to prevent a pseudo-partnership (Suliman et al. 2023a) – participants being present but not really involved in the process of decision making – it is highly important to equip facilitators with measures to engage all participants and keep the discussion ball rolling. This requires more explicit intervening than in a face-to-face setting as non-verbal hints are not feasible virtually. Facilitators should be capable of controlling the dominating participants and engaging the non-responsive ones with open questions, such as, ‘...I think I heard you say... Did I miss something?’ or ‘I’m thinking... What do you think?’. In challenging situations, the facilitators could break the tension using statements such as, ‘Let’s see what others think about it’ or ‘I think we should ask others to gain a broader perspective’.

Tip 5

Pilot the virtual co-creation sessions

After orientation, consider running a pilot session in which all facilitators can simulate their roles and fill potential gaps in their technical and facilitation skills (i.e. managing break-out and chat rooms, and sharing documents or weblinks with participants). Pilot session enables refinement and improvement of the actual plan for the co-creation session by developing synchronization between you and your co-facilitators regarding the agenda of the session, and preparing everyone on how to troubleshoot (technical) failures.

Tip 6

Prepare and orient the co-creators

Due to the lack of physical presence, power dynamics between teachers and students are relatively less apparent

in a virtual setting than face-to-face modality (Cook-Sather et al. 2021), which can be an advantage. In co-creation, teachers might feel insecure, threatened and/or skeptical and might fear giving up their innate power assumed because of their experience, seniority or institutional hierarchy (Bovill et al. 2016; Könings et al. 2021; Iqbal et al. 2023). Students may feel shy, underconfident or reluctant because of their lack of subject knowledge or experience (Ntem and Cook-Sather 2018; Barradell and Bell 2021; Kassab et al. 2022). Although these barriers are particularly well known in face-to-face co-creation activities, somewhat similar challenges could also be anticipated in a virtual setting. We recommend planning virtual preparatory sessions to help co-creating teachers, students and other stakeholders understand the value, aim and potential benefits of co-creation. Such preparatory sessions should aim at giving confidence to the students by counselling them to not feel threatened by the presence of their teachers and by encouraging them to voice their opinions openly but respectfully and constructively (Iqbal et al. 2020). Teachers could be asked not to interrupt students when they express their viewpoints and not to discourage their input with derogatory remarks or facial expressions. In our recent co-creation projects, we organized separate preparatory sessions for teachers and students, which were very well received by both stakeholders (Iqbal et al. 2020; Suliman et al. 2023b). Separate sessions warrant safety for the participants to ask questions and discuss ambiguities regarding the process as well as the expected outcomes. It is also an option to invite both teachers and students in the same preparatory session, where elements of a successful co-creation including power distribution, sense of belonging, and responsibility are explained (Suliman et al. 2023b). We recommend carefully weighing the pros and cons while deciding on combined or separate preparatory sessions for the stakeholders.

Conduction phase

Tip 7

Create a psychologically safe virtual environment

Team psychological safety is a shared belief held by members of a team that the team is safe for interpersonal risk-taking (Edmondson 2018). In virtual co-creation, participants should feel accepted and respected within their roles. It is a key responsibility of the facilitator(s) to create a psychologically safe virtual environment that enables the participants to voice their views openly without any hesitation or fear. Leveraging Edmondson’s recommendations to virtual co-creation, you can take multiple measures to foster the psychological safety of your participants. First, you can start the virtual co-creation sessions with game-based quizzes *via* online platforms (i.e. Kahoot, Wooclap) in which participants get to know each other informally and enjoy collaboration. Second, for shared understanding and ownership, collaboratively make ground rules (e.g. build on each other’s suggestions, feel shared responsibility for proposing solutions to the problem) at the start of the co-creation session, repeat and/or modify these rules in the forthcoming sessions. Third, emphasize equity and mutual respect by asking all participants to use rational argumentation and listen to each other without mockery, so that

power asymmetry could be prevented and participants feel at ease while expressing their viewpoints. Fourth, invite participants to take part in the discussion spontaneously. If you feel that some participants are reluctant to speak then encourage them to express their viewpoints in the chat box. Fifth, if you feel that someone is dominating the session by not letting others speak, then you should intervene so that others get the time and opportunity to speak. Finally, and as a different aspect of safety, it is important to inform the participants if (and when) audio or video is being recorded during virtual co-creation. More detailed practical tips on capturing and analysing the process and dynamics of student-staff partnership could be consulted in our recent work (Suliman et al. 2023b).

Tip 8

Use stimulating and collaborative activities

A successful co-creation activity demands active contribution by all participants. Since participation is *via* computers and smart devices, they might multitask and get distracted by emails and social media notifications (Lowenthal et al. 2020). To avoid such instances, multiple activities can be introduced during the co-creation process to promote active discussion and a sense of partnership among participants. For instance, you can use visual aids in the form of videos and pictures that contain scenarios, tasks or problems to which participants can relate. It will help the participants to integrate and apply their experiences into the educational design that is intended to be co-created. You can divide the group into smaller sub-groups of 3–5 participants and give tasks/assignments to each sub-group to collaborate, brainstorm and develop content at a micro-level using breakout rooms. An effective technique for making such small group collaborations productive and concrete is using virtual collaborative platforms (i.e. Padlet, Zoom whiteboard, Miro) and collaborative thinking tools (i.e. the How-Now-Wow Matrix) for structured brainstorming and content creation. These strategies are particularly useful for those participants who prefer written contribution. Virtual co-creation also provides unique, asynchronous collaborative opportunities for continuing the educational design process in between synchronous sessions. In asynchronous collaborative activities, participants can share their viewpoints, create content, or provide feedback to each other more flexibly using Google Docs, Slack, Miro board etc.

Tip 9

Facilitate shared decision making

Be mindful that co-creation is a process in which students, teachers, and other stakeholders collaboratively design education, whereas the role of the facilitator is just to guide the process of shared decision-making and/or converge opinions around the targeted educational design (McMillan et al. 2016; Könings et al. 2021). If a facilitator tries to dictate or give unsolicited input, then the participants might perceive these views to be a source of validation, which can have deleterious effects on the depth of the discussion and the opportunities for others to share their opinions (Goshtasbpour et al. 2020). Therefore, better

ask questions or add comments that expand and stimulate the conversation and facilitate shared decision-making. As a facilitator, you could also choose to switch off your camera to give the ownership of the virtual floor to the participants. In cases when your camera is on, be careful that your facial expressions do not give a confirmative or dismissive notion to the participants. In case of multiple co-creation sessions, consider providing a summary of the previous session(s) at the start of the meeting to answer any questions, clarify ambiguities and develop shared understanding or consensus.

The eventual aim of co-creation is to democratically develop a consensus on the created design of education, being a lesson, course, or program. Virtual co-creation offers the advantage that consensus on the proposed educational design can either be developed using reflective discussions or through anonymous voting and/or feedback on the designed content using online tools (i.e. Google Forms, Slack, Miro, QuestionPro, Survey Monkey, Qualtrics and Padlet etc.) during synchronous sessions. Consensus can also be developed asynchronously which can further help in avoiding the interference of personality, status, and hierarchy-related factors in the decision-making (Suliman et al. 2023b). It may also allow participants to process information more thoroughly instead of making a decision in the context of a constant flow of new information (Jeong and Chiu 2020).

Tip 10

Document the co-created educational design

Integrating ideas and viewpoints into the educational design is heavily dependent upon how comprehensively you capture and document participants' narratives during the discussion. Different documentation methods exist that can be considered during a virtual co-creation session. You can appoint scribe(s) to collect key interactions, quotes, group decisions and recommendations by taking field notes (see for example: (Suliman et al. 2023a)). Scribe(s) can also be asked to monitor and note non-verbal expressions as well as the extent of participants' engagement and contribution during the activity. Nominating participants for notes taking is especially useful in breakout rooms when a facilitator cannot be virtually present in all rooms at the same time. Another effective method is to audio and/or video record the sessions. For ethical reasons, you should always take informed consent from the participants for recording the sessions, storing data on a computer or cloud storage, and setting expirations on the storage of the data.

Follow-up phase

Tip 11

Evaluate the co-creation process and outcomes

It is crucial to collaboratively explore and analyse the process of the student-staff partnership as well as its outcomes throughout co-creation (Suliman et al. 2023a). Collaborative reflection optimizes co-creation by helping to adjust to new roles, building relationships and trust, and developing a deeper understanding of each other's

perspectives (Cook-Sather 2014; Freeman et al. 2014). Facilitators' in-session observation notes capturing key features of partnership dynamics (i.e. emotions and reactions, sense of familiarity, teachers' response to students' ideas, initiation of new ideas, and consensus building) could serve as a strong foundation for collaborative reflections. Immediately after each session, we recommend debriefing the involved stakeholders synchronously or asynchronously on the outcomes of the co-created educational design ideas to ensure transparency, accuracy, and equity. During this debriefing, the facilitator may highlight the contributions from various stakeholders and how (or if) consensus was achieved. The facilitator may directly seek participants' feedback on the co-creation outcomes as well as the process, what needs to be modified, and whether additional co-creation sessions are needed. Co-creators could also be given the opportunity to (anonymously) reflect upon the process (e.g. participants' comfort, extent of engagement, and contribution to the content) by using quantitative (survey) or qualitative (interviews, focus groups) methods. We acknowledge that student-staff partnership is both inherently process-orientated and outcomes-driven, which is why paying equal attention to evaluating both the process and the outcomes is the way forward to establishing a true student-staff partnership (Suliman et al. 2023a).

Tip 12

Disseminate the co-creation outcomes

For wide dissemination of the co-creation outcomes (developed educational design), we recommend using both informal (i.e. WhatsApp, Twitter, LinkedIn, Facebook, podcasts) and formal platforms (i.e. journal publications, university newsletters, conference contributions and university/school websites). Other than information sharing, this dissemination might also help in bringing an attitudinal change among those stakeholders who are reluctant to embrace the value of co-creation in education, thereby leading to a more sustainable and long-lasting systemic change (Bovill et al. 2016). Showcasing the co-creation outcomes may also facilitate the implementation of the developed educational design as well as gathering financial and administrative support from the leadership for future co-creation activities. Indeed, a successful implementation of the co-created educational design demands all stakeholders to be on board, while collaboratively translating it into practice.

Conclusion

Grounded in the current literature and drawn from our experiences, this twelve tips paper provides practical recommendations to virtually co-create education. Indeed, virtual co-creation offers promising solutions to practical challenges that are conventionally experienced in the face-to-face co-creation approach. As can be noted in Figure 1, *preparation* demands a lot of attention for the success of both the co-creation process and outcomes. If developed and executed carefully, virtual co-creation can provide an inclusive, empowering, and psychologically safe environment to all stakeholders (especially students) where they can openly voice their true opinions. We urge curriculum designers and institution leaders to explore the full

potential of virtual co-creation by involving stakeholders beyond institutes and across borders.

Acknowledgements

We express our appreciation to Professor Diana Dolmans, member of the Special Interest Group (SIG) on Co-Creation and Educational Change at the School of Health Professions Education, Maastricht University for providing constructive feedback on this manuscript.

Disclaimer

The authors declare that this paper has neither been submitted to any other journal nor been published, in part or full, in any literature.

Disclosure statement

The authors report there are no competing interests to declare.

Ethical approval

Not applicable.

Funding/support

None.

Notes on contributors

Muhammad Zafar Iqbal, PhD, is a Research Scientist at Acuity Insights, Toronto, Ontario, Canada and a member of Special Interest Group 'Co-creation and Educational Change' at School of Health Professions Education, Maastricht University, Maastricht, the Netherlands.

Shireen Suliman, MBBS, MD, MEHP, is a Senior Consultant and Associate Director of Medical Education, Hamad Medical Corporation, Doha, Qatar. She is Clinical Associate Professor of Medicine at the College of Medicine, Qatar University, and Assistant Professor of Medicine at the Weill Cornell Medicine Qatar, Doha, Qatar. She is a PhD candidate and member of the Special Interest Group 'Co-creation and Educational Change' at the School of Health Professions Education, Maastricht University, Maastricht, the Netherlands.

Raghdah Al-Bualy, MHA, MHPE, is Acting Director for Graduate Medical Education at Oman Medical Specialty Board, Oman. She is a PhD candidate and a member of the Special Interest Group 'Co-creation and Educational Change' at the School of Health Professions Education, Maastricht University, Maastricht, the Netherlands.

Juliëtte Anna Beuken, PhD, is an Assistant Professor at the School of Health Professions Education and Department of Educational Development & Research, Faculty of Health, Medicine and Life Sciences at Maastricht University, Maastricht, The Netherlands. She is a member of Special Interest Group 'Co-creation and Educational Change' at the School of Health Professions Education at Maastricht University.

Astrid Pratidina Susilo, MD, MPH, PhD, is an Assistant Professor in the Department of Medical Education and Bioethics, Faculty of Medicine, Universitas Surabaya, Indonesia. She is also a practicing anesthesiologist and a member of the Special Interest Group 'Co-creation and Educational Change' at the School of Health Professions Education, Maastricht University, Maastricht, the Netherlands.

Daniel C. Rainkie, PharmD, is an Assistant Professor at Dalhousie University College of Pharmacy, Halifax, Canada. He is a PhD candidate and member of the Special Interest Group 'Co-creation and Educational Change' at the School of Health Professions Education, Maastricht University, Maastricht, the Netherlands.

Michelle J. H. Verheijden, MD, is a General Practitioner (GP) trainee in the Department of Family Medicine, Faculty of Health, Medicine and Life Sciences at Maastricht University, Maastricht, The Netherlands. She is a PhD candidate and a member of Special Interest Group 'Co-creation and Educational Change' at the School of Health

Professions Education and Care and Public Health Research Institute at Maastricht University.

Jill Ronald Diane Whittingham, PhD, is a senior lecturer at the Department of Educational Research and Development, at the Faculty of Health Medicine and Life Sciences at Maastricht University, the Netherlands. She is a member of the special interest group 'Co-creation and Educational Change' at the School of Health Professions Education, Maastricht University, Maastricht, the Netherlands.

Karen D. Könings, PhD, is an Associate Professor at the School of Health Professions Education and Department of Educational Development & Research, Maastricht University, Maastricht, the Netherlands and an Honorary Professor at the University of East Anglia, Norwich, UK. She is the chair of the Special Interest Group 'Co-creation and Educational Change' at the School of Health Professions Education at Maastricht University.

ORCID

Muhammad Zafar Iqbal  <http://orcid.org/0000-0002-5605-8143>

Shireen Suliman  <http://orcid.org/0000-0001-6216-0243>

Raghdah Al-Bualy  <http://orcid.org/0000-0003-3676-0282>

Juliette Anna Beuken  <http://orcid.org/0000-0002-5431-9418>

Daniel C. Rainkie  <http://orcid.org/0000-0002-9744-1069>

Astrid Pratidina Susilo  <http://orcid.org/0000-0002-4371-1721>

Michelle J. H. Verheijden  <http://orcid.org/0000-0003-3528-0623>

Karen D. Könings  <http://orcid.org/0000-0003-0063-8218>

References

- Barradell S, Bell A. 2021. Is health professional education making the most of the idea of 'students as partners'? Insights from a qualitative research synthesis. *Adv Health Sci Educ Theory Pract*. 26(2): 513–580. doi:10.1007/s10459-020-09998-3.
- Bovill C, Cook-Sather A, Felten P, Millard L, Moore-Cherry N. 2016. Addressing potential challenges in co-creating learning and teaching: overcoming resistance, navigating institutional norms and ensuring inclusivity in student-staff partnerships. *High Educ*. 71(2): 195–208. doi:10.1007/s10734-015-9896-4.
- Cook-Sather A. 2014. Student-faculty partnership in explorations of pedagogical practice: a threshold concept in academic development. *Int J Acad Dev*. 19(3):186–198. doi:10.1080/1360144X.2013.805694.
- Cook-Sather A, Luz A. 2015. Greater engagement in and responsibility for learning: what happens when students cross the threshold of student-faculty partnership. *High Educ Res Dev*. 34(6):1097–1109. doi:10.1080/07294360.2014.911263.
- Cook-Sather A, Slaters S, Acai A, Baxter J, Bond R, Lowe T, Zurcher H, O'Brien J, Tavares V, Lewie M-T, et al. 2021. Diversifying students-as-partners participants and practices. *IJSaP*. 5(1):146–159. doi:10.15173/ijsap.v5i1.4627.
- Dong C, Lee DW-C, Aw DC-W. 2021. Tips for medical educators on how to conduct effective online teaching in times of social distancing. *Proc Singap Healthc*. 30(1):59–63. doi:10.1177/2010105820943907.
- Edmondson AC. 2018. The fearless organization: creating psychological safety in the workplace for learning, innovation, and growth. Hoboken: John Wiley & Sons.
- Freeman R, Millard L, Brand S, Chapman P. 2014. Student academic partners: student employment for collaborative learning and teaching development. *Innov Educ Teach Int*. 51(3):233–243. doi:10.1080/14703297.2013.778064.
- Goshtasbpour F, Swinnerton B, Morris NP. 2020. Look who's talking: exploring instructors' contributions to Massive Open Online Courses. *Brit J Educational Tech*. 51(1):228–244. doi:10.1111/bjet.12787.
- Goshtasbpour F, Swinnerton BJ, Pickering JD. 2021. Twelve tips for engaging learners in online discussions. *Med Teach*. 44(3):244–248. doi:10.1080/0142159X.2021.1898571.
- Iqbal MZ, Könings KD, Al-Eraky M, AlSheikh MH, van Merriënboer JGG. 2020. Development of an entrustable professional activities (EPAs) framework for small group facilitators through a participatory design approach. *Med Educ Online*. 25(1):1694309. doi:10.1080/10872981.2019.1694309.
- Iqbal MZ, Könings KD, Al-Eraky MM, van Merriënboer JGG. 2023. It's about time to involve all stakeholders in co-creating faculty development programmes – Exploring the perceptions of students and teachers. *Innov Educ Teach Int*. 60(2):239–251. doi:10.1080/14703297.2022.2030781.
- Jensen K, Bennett L. 2016. Enhancing teaching and learning through dialogue: a student and staff partnership model. *Int J Acad Dev*. 21(1):41–53. doi:10.1080/1360144X.2015.1113537.
- Jeong A, Chiu MM. 2020. Production blocking in brainstorming arguments in online group debates and asynchronous threaded discussions. *Educ Tech Res Dev*. 68(6):3097–3114. doi:10.1007/s11423-020-09845-7.
- Jumat R, Loan-Ng S, Mogali SR, Ng KB, Leong BY, Han SP. 2023. Twelve tips for co-production of online learning. *Med Teach*. 45(9): 966–971. doi:10.1080/0142159X.2023.2206533.
- Kassab SE, Taylor D, Hamdy H. 2022. Student engagement in health professions education: AMEE Guide No. 152. *Med Teach*. 45(9):949–965. doi:10.1080/0142159X.2022.2137018.
- Khan RA, Atta K, Sajjad M, Jawaid M. 2021. Twelve tips to enhance student engagement in synchronous online teaching and learning. *Med Teach*. 44(6):601–606. doi:10.1080/0142159X.2021.1912310.
- Könings KD, Brand-Gruwel S, van Merriënboer JGG. 2011. Participatory instructional redesign by students and teachers in secondary education: effects on perceptions of instruction. *Instr Sci*. 39(5):737–762. doi:10.1007/s11251-010-9152-3.
- Könings KD, McKenney S. 2017. Participatory design of (built) learning environments. *Euro J of Education*. 52(3):247–252. doi:10.1111/ejed.12232.
- Könings KD, Mordang S, Smeenk F, Stassen L, Ramani S. 2021. Learner involvement in the co-creation of teaching and learning: AMEE Guide No. 138. *Med Teach*. 43(8):924–936. doi:10.1080/0142159X.2020.1838464.
- Könings KD, Seidel T, van Merriënboer JGG. 2014. Participatory design of learning environments: integrating perspectives of students, teachers, and designers. *Instr Sci*. 42(1):1–9. doi:10.1007/s11251-013-9305-2.
- Lowenthal P, Borup J, West R, Archambault L. 2020. Thinking beyond Zoom: using asynchronous video to maintain connection and engagement during the COVID-19 pandemic. *J Technol Teach Educ*. 28(2):383–391.
- Malik AS, Malik RH. 2021. Twelve tips for conducting team-based learning session online in synchronous setting. *Med Teach*. 44(5):486–493. doi:10.1080/0142159X.2021.1910642.
- Martens SE, Meeuwissen SNE, Dolmans DHJM, Bovill C, Könings KD. 2019. Student participation in the design of learning and teaching: disentangling the terminology and approaches. *Med Teach*. 41(10): 1203–1205. doi:10.1080/0142159X.2019.1615610.
- McMillan SS, King M, Tully MP. 2016. How to use the nominal group and Delphi techniques. *Int J Clin Pharm*. 38(3):655–662. doi:10.1007/s11096-016-0257-x.
- Ntem A, Cook-Sather A. 2018. Resistances and resiliencies in student-faculty pedagogical partnership. *IJSaP*. 2(1):82–96. doi:10.15173/ijsap.v2i1.3372.
- Suliman S, Iqbal MZ, Könings KD. 2023a. It is not about the destination but the journey: a dive into student-staff partnership processes. *Med Teach*. 45(12):1318–1322. doi:10.1080/0142159X.2023.2206538.
- Suliman S, Könings KD, Allen M, Al-Moslih A, Carr A, Koopmans RP. 2023b. Sailing the boat together: co-creation of a model for learning during transition. *Med Teach*. 45(2):193–202. doi:10.1080/0142159X.2022.2118037.
- Thorpe SJ. 2016. Online facilitator competencies for group facilitators. *Group Facil Res Appl J*. 13:79–90.