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Building the implementation workforce for health and social care

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Report on the PhD course (IO4)

This is a report on the experiences of the EISEN PhD group after arranging for an international online PhD-course on implementation targeting health and social care staff during the winter of 2021. The title of the course is: Implementation Science – Implementation Leadership in Healthcare and Social Service.

Short introduction

Karolinska Institutet was responsible for the 5 ECTS course at PhD student level. Nearly 60 persons applied to the course, 23 PhD students from nine different countries participated with different professional backgrounds and various length in their PhD program. Teachers from all participating partners planned, ran and evaluated the course together, and additional six researchers from four different nations participated in the course with lectures and seminars. KI was responsible for the administration of the course, such as the application and registration process including student account at KI, the learning platform, and the registration of examination and grades. The designated course leader was from KI. Of the 23 students who registered to the course, one student had to leave the course after two weeks due to family reasons. The remaining 22 students participated in the course and submitted examination assignments. Of the 22 students, 20 students received the grade Pass. The names and affiliations who participated in the group at this section were:

Karolinska Institutet

Associate Professor Anne-Marie Boström (leader)

Professor Henna Hasson

Associate Professor Hanna Augustson

Associate Professor Linda Schöldberg

Dalarna University

Professor Lars Wallin

Associate Professor Lena Dafgård

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Canterbury Christ Church University (CCCU)

Professor Chris Burton

Western Norway University of Applied Sciences (HVL)

Associate Professor Tone Elin Mekki

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Introduction to the objectives of the PhD student course

Based on the discussions in the EISEN steering group and joint meeting, including the initial stakeholder involvement, the focus and content were decided in joint partner collaboration (see IO1 report). The team decided to focus on leadership in implementation research in health and social care and to develop a course with a topic which was not identified in previous implementation research PhD courses.

The aim of the course was to increase participants' personal and scientific leadership capabilities regarding implementation research and enhance the opportunities to build international networks with course participants, teachers and researchers. With this aim of the course, the Learning Outcomes defined were, to (put in a box):

1) Demonstrate specialized personal and scientific leadership skills to influence implementation, and to support the development of these skills in other participants,
2) Evaluate different aspects of contexts (macro, meso and micro level) and their potential to affect implementation research and practice
3) Critically appreciate how to design an effective implementation research project in order to have an impact on practice and policy
4) Demonstrate understanding of the challenges of leading implementation practice in and across health and social services.

Therefore, theories and skills in leadership were highlighted throughout the course, together with the topics/concepts, context, implementation strategies, study design and evaluation. The assessment included an oral presentation and a written assignment comprising a plan and strategies for an implementation research project within the PhD students' on-going studies or planned projects. A critical reflection on chosen strategies in relation to context and own leadership skills were asked as part of the assignment.
The syllabus, schedules, learning activities including the preparatory work and examination assignment are available in Appendix to this report.

Planning phase

The team of teachers and pedagogical experts from Dalarna TEL-team who focused on the PhD course started the planning 6 months prior to the beginning of the course. In line with the overall aim for EISEN, the group discussed how to use the TEL-concept to focus on active learning throughout the course as well as blended learning. As a result, the group decided to use Canvas as the learning platform, Zoom as the media for running the communication and lecturing, and Padlet as a whiteboard during the course days.

The course was set up to run for 12 weeks, including fixed days for classes and seminars (course days) and flexible students' workdays. There were seven fixed course days in total: two introduction days; one day for each of the main topics (Implementation research leadership, Context, Implementation strategies, and Study design and evaluation); and the final day for the oral presentation that was part of the examination (the schedule for the course is an appendix to the report). Moreover, we decided that the students should be put into smaller groups (core groups) with 5-6 students. These core groups would be the hub for the students to prepare and discuss between and during course days. So, with the aim to have groups with a variety of experiences and topics of implementation science, in country, and profession, the students were divided into four core groups using criteria such as university/country, junior or senior PhD student and profession. For each of the four topics presented on the four class days, two teachers were responsible. The flipped classroom was selected as an instructional strategy: the starting point would be the preparatory work that the students would do individually and together in the core group to prepare for the seminar discussions on the course days. The schedule for each day included seminars where the students could present their output from the preparatory work in the core groups, as well as questions. The course days also included presentations by teachers and invited experts in the field. All to prepare the students to accomplish the learning outcomes and the examinations for the course. Finally, three teachers worked on the design of the examination assignment and evaluation criteria to assess that the learning outcomes were achieved.

Teaching and assessment phase

A week prior the first course days, the students had access to the course web site on Canvas, to become familiar with it. They were invited to make a short presentation about themselves, and to comment on each other's presentations. In this way, the students had the opportunity to get to know each other in the group. The course leader oversaw that all students made presentations and if there were questions about the course or the website, these questions were promptly responded to.

On the two introduction days the aim, the intended learning outcomes, and the examination method were presented. The students and teachers made short presentations to introduce themselves. The IT tools used on the course were presented. One of the teachers also walked through the course website in Canvas and explained the logic about the setup of the website and the students had the opportunity to ask questions. Furthermore, there was an introduction to the theme of the course - Implementation science and implementation research leadership - with breaks for core group discussions and dialogue with lecturers. At

the end of the second day teachers responsible for days 3 and 4 did a short overview of the next study tasks, for the students to prepare individually and in group prior to the up-coming course days, with opportunity for students to ask questions. The course day finalized with an evaluation of the first two days by the students on Padlet (see IO2 report).

The four following course days were focused on the four topics (Implementation research leadership, Context, Implementation strategies, and Study design and evaluation) and the set-up was, as planned, a mix of presentations and seminars with whole group discussions. The goal was to make it possible for students to be active and be part of the dialogue in the whole group and in the core groups.

The final day was the examination seminar day where the students were mixed into four new groups. A teacher led each group and each student made the oral presentation prepared using the criteria for the examination. Time was set off to discuss the topic of the presentation and give feed-back to the student. After the examination seminars were finished all students gathered virtually and evaluated the course orally. After that, one or two students per group met for a focus group interview with persons who had not been involved in the course to evaluate the course.

The course ended a week after when the students submitted their written assignment. Two teachers read and assessed the assignments and marked them using pre-decided assessment criteria. The students received the grade and feedback of the assessment within 10 days.

Evaluation

The experiences from the students were captured in different ways. At the end of each course day, the students were asked to write their evaluation on Padlet using two or three questions. At the end of the course, each core group of students were asked to indicate one or two students to participate in a focus group interview with the aim to make an overall evaluation of the course. In the focus group interview, five students participated, and the interview was led by two persons from the EISEN group who had not participated in this course. According to the guidelines at Karolinska Institutet, an evaluation survey was sent to the course participants. The survey contains questions such as the content of the course, learning activities, the learning environment and climate, the assessment of learning outcomes, the student's motivation, and engagement in the course. There are also open-ended questions where the students could reply in their own words. The survey was sent out to all students by the administrator of the course.

Students' experiences from the course

The students who participated in the course had different professions from health and social care, and also different experiences of implementation research, to some extent relating to different stages in their PhD program. Some of the students were in the phase

to defend their PhD thesis while some had just started their PhD program. These different levels and experiences meant that the students varied in knowledge and skills in implementation science and in research methodology. Even so, the students participated and supported each other in the study groups which were set up with a mix of experiences such as junior and senior PhD students. The evaluation of students' experiences in the end of each course day using Padlet showed that the students highly valued the group discussions and networking as well as the key lectures. The presentation of Canvas and the IT-tools used during the first course day eased the understanding of the tools as well as asking for help in using these tools. The key lectures on Context, Leadership and Implementation strategies were very appreciated. Some of the students suggested more lectures on basic concepts in Implementation Science. The teachers' lectures on their own experiences regarding setting up implementation research projects were also valued. A constant request in the evaluations of the course days was for more time for group discussions. Students did really enjoy and learn in the core groups, but also appreciated that on the fourth and sixth course day they were mixed into other small groups/breakout groups.

In the focus group interview the students expressed the following positive experiences:

- The transnational nature of the course was appealing:
  "*I found the premise of this being a multi-national approach to be one of the biggest draws to doing it. It certainly made it very appealing to apply to do this program"* P8.
- Mixing different professionals was also an important learning experience:
  "*I found that especially interesting to learn about all the different health professional backgrounds because … there are really important nuances within the different professions which are actually, at least for my project, important to consider*" P6.
- The online organization of the course was appreciated*:*
  "Well, when I compare this course to other courses I've been doing this semester and the semester before, I have to say I'm really impressed with the organization of how they have structured this in a fully virtual environment" P7;
  "*This is one of the smoothest and well-run online courses that I've been part of*". P8
- Regarding the use of technology to facilitate participation, most were positive about this. Generally, students were positive about Canvas as a learning platform and the introduction session about Canvas was very useful:
  "*I hadn't used Canvas before. So in the beginning I thought it was quite overwhelming, the amount of information there. So I think the introduction like what was done on the first day is a good thing and then you get used to it after a while and it's quite self-explanatory"* P5.
  Technology skills trained during the course will help to keep contact in the

future:

> «We just decided to have a lunch in one month together over Zoom, because we wanted *to continue to meet and work together, and that's an advantage of something that we can do now that we are so accustomed to being on Zoom*» P4.

- The work in core groups was valued especially for the purpose of clarifying concepts presented in lectures and prepare for the assignments:

> "(some colleagues) *met before the last assignment,..., so that they could talk and discuss the assignment and prepare for the presentation*» P4.

Also because of the experience that all students were "in the same "boat", no one being more clever than others – a safe place to exchange experiences, thoughts and understandings. It was so positive that they want to continue to connect with their international peers by means of a platform, an annual conference:

> «We've built up too much in this course to let it slip away. It would be great if we could continue to try to connect us and the next generation of implementation scientists» P4.

> «*It would be nice if we could have some sort of networking platform so that we can keep in contact*» P5;

The teachers were appreciated for making the students feel included and "almost as equals". Students highlighted the "enabling learning atmosphere" P6, and the interaction and support from the teachers:

> "*They've all been really helpful and really want to help you in passing the course … but also in your own implementation project, they've always been fast in responding when I've seen someone asking questions on Canvas and also during the breakout sessions, they physically come in and check if everything is alright and if there are any questions they really go into that, to help you understand*» P7.

> «*…they were really wonderful, really added a lot to the programme*» P8.

- The variety and quality of the lectures was appreciated:

> "*every lecture, whether it was from the core group or the guest lectures, they were really well prepared for the course"* P4

- The course was relevant for their future careers:

> "*networking with all of the other people in the group has been very good and I hope that later on in our careers we can draw on that*» P5.

It was also relevant in terms of the development of personal skills:

> «*I really enjoyed the reflective component of the course, so being reflective of what skills do I have already and what skills do I probably need to develop and who can help me with doing that*" P6.

> *"I thought it would be about other people's leadership of implementation projects but then having this module where we focus on our own role was very good and makes you think"P5.*

- Students found the workload 'intensive', but were generally happy with the fact that the assignments were related to their PhD projects:

> *"There's quite a lot of assignments but we all agreed in our core group that where we are, at least in our projects now, they are useful. You can use the assignments for your actual project, it's not something that you just do on the side and then it's got nothing to do with your PhD, you can actually use that information later which I found quite good.*» P5.

- Students found that COVID-19 had no impact on the course delivery, on the contrary:

> *"It was really a space where I could really focus on what I actually wanted to focus on, without having to think about the Covid all the time, which is in all our daily lives at the present*» P6.

Most were glad that it did not come up as an issue during the course, although one student said she felt it should have been addressed, given the importance of context in implementation science.

Some less positive aspects also emerged:

- The course leaders could have been more clear on workload at an early stage of the course – not all students had time to finish the assignments in due time due to other commitments. Students were concerned with being able to plan workload in advance. They expressed that they did not expect so much work between the course days and that it might be useful to have those workdays timetabled or at least estimated:

> «*So having an awareness of what the in-between module work was going to be, how long we were going to expect to spend on this so that we could plan that workload into our working week, as well as in-between module networking and group collaborative work to actually just have that timetabled in as part of the programme so that we can, again, just have that in our diaries*. P8.

- Concerning the topic Study Design and Evaluation, they missed lectures, instead of just having lecturers present their own experiences.
- Regarding the flipped classroom method, it was mentioned that it may be more difficult, especially for students who are less familiar with Implementation Science, to grasp the content by having to make readings and group assignment without a previous lecture to introduce the topic.
- Students also mentioned the downside of online courses:

> "*...one thing we've talked a little bit about is networking opportunities. I feel that to a certain extent that these aren't really there when you do it*

> *virtually because the proper networking you do are during the coffee breaks, when you walk with other people, when you lunch together. And I miss that»* P7; «*you need that kind of switch between productivity and socialisation to be able to develop some of those more fruitful conversations that happen as P7 said, at coffee breaks and lunch breaks. Otherwise you do just burn out much quicker, if you don't have that sort of social downtime*» P8.

Of the 22 students, 16 students responded on the KI survey. To summarize the results, the participants were very satisfied with the course content, the lectures, the group work and the examination. They were also very pleased with the set up in Canvas and the use of digital tools, for example Padlet. Some of the participants said that this course was the best course that they had attended as PhD students. There were some comments about a big workload related to readings and preparing home work to up-coming course days.

Looking into the specific questions, the mean rating of the 15 items in the course evaluation varied between 3.0 to 4.7 on a 1-5 rating scale.The three highest rated items concerned the open climate during the course (m=4.7); students' motivation to learn the content (m=4.5) and that the examination adequately assessed the achivement of the intended learning outcomes (m=4.4). The three items with the lowest mean values were the workload was reasonable in relation to the credits (m=3.0), sufficient prior knowledge to fully participate in the course (m=3.6) and the content of the course was clearly presented in the syllabus (m=3.9).

The content of the course was much appreciated by the students, particularly the leadership section. The set up of the learning activities and the open and safe learning climate supported the discussions and learning including networking among the participants. Although the students were very committed to learn about the topic Implementation Science, there was a wide variation in the level of prior knowledge and skills among the students in the topic. Some of the students had read most of the prereading articles while for some students it was the first time. Even so, the students supported each other and learned from their level, but the students with less background knowledge had a steeper learning curve and a higher workload.

Teachers` experiences

The teachers' experiences were collected at several points in time, in meetings to discuss the planning and implementation process, and after the course.

Teamwork and functioning

During the planning phase, regular meetings of the team were held with discussions regarding the objectives, content, examination, teaching methods and structure of the course. There was also much time spent on the pedagogical aspects of the set-up of the course, especially the IT-tools.

The skill-mix in the team (teachers with expertise in the content and teachers with IT pedagogical competence) as well as the transnational diversity was a very positive experience. The teachers with IT pedagogical expertise supported the development of the learning activities, IT-tools and the setup of Canvas (the learning platform). The close collaboration and support in the group developed the IT knowledge and skills of the group.

The group also dedicated three teachers for developing the examination assignment according to the rules at Karolinska Institutet. After the course, two teachers assessed the written assignments according to the assessment criteria and marked them.

The syllabus

The focus on leadership in implementation science gave this course an additional dimension, which is rare in other similar courses. The option of applying the principles and methods of student active learning such as blended-learning, and the common structure in the scheduling of the learning activities throughout the course, were a good choice. It facilitated students' learning and their reaching of the objectives. The strategy of creating core groups also proved to be very useful and contributed to the students' learning and satisfaction. The flipped classroom strategy allowed the students to read about the topic and discuss it with other students prior the lecture, which helped them to ask questions and take more benefit discussing with the lecturer.

The IT tools chosen for the different purposes and activities were appropriate to the aims of the course. Canvas proved to be a good learning platform, very friendly and allowed easy access of students and teachers to all the materials (instructions for the activities, readings, assignments, presentations, and others).

Students' participation and learning

It was very rewarding for the teachers to see the students so motivated to this theme and so involved in the activities. The teachers assumed that all the students would have prepared and read the learning material for the topic prior to the course day, but due to the diversity in the student group, this was not the case, and some students were not so well prepared for the discussions and seminars. This diversity was related to previous knowledge and experience in the field of implementation science, but also in terms of time available to study, since some students were part-time students, and they were required to work more than expected in the clinical field because of the pandemic.

The discussions between students and teachers during the seminars and the projects presented by the students in their examination assignments demonstrated the learning curve of the students and their enthusiasm regarding implementation matters in their diverse professional fields and disciplines. It was also very encouraging to see that the students established connections and networks for the future.

Evaluation after the course

A follow-up with the group of teachers revealed that the experiences were very positive regarding the collaboration between teachers in the group, particularly with the teachers from IO2 (pedagogical IT expertise). The planning phase had been very intense and had taken a lot of time, but this had paid off well with no issues regarding technical problems during the course. Some reflections from the group were that in the next course, the students should have decided on the case or project that they want to prepare for the examination assignment in advance, so that the learning activities could be focused on this case. The teachers assumed that the students would have prepared and read the learning material for the topic prior to the course day, but due to the diversity in the student group in relation to pre-understanding of the topic for the course, some students were not so well-prepared for the discussions and seminars. Moreover, the learning activities should be revised to be more linked to each other and follow the development of the topics.

The conclusions regarding the findings from the KI survey are that the course has filled a gap for PhD students in the field of Implementation Science in Europe. At the time when this course was executed, there were a lack of PhD course in this field. The students met other PhD student from different universities in Europe and learned about their PhD research projects and also about their development of knowledge and skills in Implementation Science. The setup with core groups through the course where the students get to know each other worked very well too. This approach also facilitated to build a net-work between students after the course.

Lessons learned

The preparation of the course with a team of teachers with various expertise in content and in IT pedagogical tools was an important ingredient for the success. The presentation of the students through Canvas before the first course day, connected the students, and is strongly recommended for next course.

Organising the students in core groups resulted in an open climate of discussion within the group and students felt that they could ask questions in an open way and thus learn a lot from each other. This strategy should be continued.

The strategy of flipped classroom should also be continued since it prepared the students to take more benefit from the discussion with the lecturers. Some reflections from the group were that in the next course, the students should have decided on the case or project that they want to prepare for the examination assignment in advance, so that the learning activities linked to the different topics of the course could be focused on this case.

Next time the course is run, there is also a need to be more clear about the knowledge level required from the students who will apply. Furthermore, it has to be clear that the setup of the course will require reading and work with different assignments individually

and in groups between the scheduled course days. The course contains 5 ECTS corresponding to 130 hours of which 42 hours (6 hours x 7 days) are fixed scheduled course days and the rest of the hours are students' own work. The workload for the students` needs to be communicated in an early stage, and that the students need to set off time between the scheduled course days.

Further developments and plans

There is no doubt that this course was successful and both students and teachers expressed that preparing students at PhD level in Implementation Science is relevant and needed to move health and social care and services forward, in terms of quality and evidence-based innovation. The plan is that this course, with the necessary adjustments, will continue to be offered by partner universities in cooperation. The PhD-course will be held at KI in Autumn 2022.