

Thomas TRIBELHORN¹, Roman SUTER & Sevgi ISAAK (Bern)

Student eCoaches are successful Change Agents

Abstract

Cultivating a sustainable culture of experimentation in higher education is no easy task. This paper presents a promising approach for application at universities. Carefully selected senior students completed a four-month intensive programme to gain professional competencies in technology-enhanced teaching as well as coaching skills. These highly qualified eCoaches actively supported university teachers with realising innovative learning scenarios. This way, a system of reverse mentoring was implemented and the eCoaches became change agents. Innovation projects had to be submitted in order to apply for eCoach support. Evaluation revealed a high level of satisfaction among the project leaders, i. e. higher-education teachers, and in some cases they indicated their excitement about how much they had learned from their eCoach, in addition to developing an innovative scenario.

Keywords

eCoaches, reverse mentoring, change agents, educational innovation, organisational development, professional development

¹ email: thomas.tribelhorn@unibe.ch



1 Que sera, sera ...

What succeeds the pandemic-related *emergency remote teaching* and *distance learning*? The COVID year has left its mark on higher education. What do we learn from it? Which elements of teaching and learning can remain online and what has to happen on campus again? How can future high-impact teaching be designed efficiently with the help of digital tools? And above all, how can we preserve interpersonal relationships and prevent the loss of a sense of belonging, within technology-rich learning scenarios? These and other questions have been on university teachers' minds around the world for longer than initially expected. Many teachers have recognised the benefits of digital technology for teaching, while others were soon driven by one main thought: Please let me go back to face-to-face teaching on campus. In addition to feeling restrained relating to personal and spontaneous interactions, a variety of reasons may have led to the latter position. Teachers might hold the view that online learning generally is of lower quality than face-to-face learning (e. g., HODGES et al., 2020), although research clearly reveals that the instructional quality mainly depends on the teachers' competence and versatility to design learning environments (e. g., HATTIE, 2009). Hence, teaching quality is not primarily about the teaching tools' functionality or usability, but rather about to what degree teachers are able to use them appropriately, including activating students' prior knowledge, eliciting student engagement, providing quality feedback or capturing valuable student feedback (HATTIE, 2012, 2015) – in line with the old proverb: a fool with a tool is still a fool. Following common sense it would be wise to keep the best of both worlds, in addition to expectations by science, politics and society that universities should keep on evolving. However, teachers' personal concerns are usually well-founded and may interfere with development and innovation, so that for change and experimentation to happen, certain conditions need to be met.

1.1 Conditions for experimentation and change

Teachers in research-oriented universities tend to value research-related activities highly and as relevant their job satisfaction (CRETCHLEY et al., 2014). It is thus hardly surprising that they tend to adopt educational technology easier if it promises to save them time and make their teaching easier. Thus, cultural change in educational institutions, such as universities, often does not keep pace with techno-

logical change. Strategic guidelines on educational innovations may improve their sustainability (EULER & SEUFERT, 2005), so that EULER's (2013) differentiation between *learning cultures*, *study programmes* and *courses/lectures* might be helpful for managing change in higher education development.

We humans are creatures of habit, we love our routines and tend to optimise investment of effort. Each new wave of innovation requires extra energy to persist. Therefore, in order to cultivate a sustainable culture of experimentation at universities, supportive conditions at different system levels of the institution need to be fulfilled: It is necessary to take into account both institutional cultures as well as individual values and beliefs; innovation support has to address resources, infrastructure, professional development and conceptual innovation simultaneously. In addition, change processes should be based on research evidence and clear strategic guidelines, but at the same time provide enough room to trying out without failure sanctions.

Here, we would like to suggest reverse mentoring (RM) as a promising approach for experimentation. “[For] leaders, RM offers a private learning space to absorb, reflect and experiment with ideas without pressure from external accountability or intrusion, fulfilling the love for learning and generative instincts [...] (BROWNE, 2021, p. 256).

1.2 Reverse Mentoring

Following GREENGARD (2002), *reverse mentoring* was introduced by General Electric's former CEO Jack Welch in 1999. He ordered 500 of the company's top managers to find workers skilled in using the internet in order to keep managers up to date with technological advancements, including personalised coaching on using new technology. Prior to this initiative, mentoring was usually defined as one-to-one coaching when an experienced older person supported a less experienced younger person. The term *reverse* refers to turning or rather shifting the roles: now the younger person being the experienced mentor, whereas the older one is the mentee.

Literature on reverse mentoring in education is still limited. This may be due to the relatively new understanding of mentoring, which first had been adopted by larger companies with high ambitions. Applying mentoring, these corporations have aimed

to achieve competitive advantages and were possibly less restrained to flipping traditional hierarchies (GARG & SINGH, 2020). Reverse mentoring as a strategy was primarily driven by technological development in the first place: “The clear aim of this reverse relationship is to share and transfer technological expertise, subject matter advances, knowledge, and understanding of forthcoming trends and global perspectives between the mentor (junior) and the mentee (senior)” (GARG & SINGH, 2020, p. 1).

Reports on reverse mentoring are mainly available as descriptions of best practices in the private sector. In this field, it is particularly important to make optimal use of the knowledge of the so-called technology-savvy millennials. This is especially relevant in the area of new technologies, where the mentors’ specific areas of expertise and the younger generation’s specific perspective seems important. Reverse mentoring has thus been seen as a promising strategy to enhance intergeneration learning, specifically by improving intergenerational relationships, building the leadership pipeline, enhancing diversity initiatives and driving innovation (MARCINKUS MURPHY, 2012).

Although there are only a few reports on reverse mentoring within the higher education sector, the concept seems promising. For example, LEH (2005) reports that among various measures of collaboration between prospective teachers (students in teacher programs) and their university professors, service learning and reverse mentoring were considered the highlights of the multi-layer teacher training program. In addition, there have been several initiatives at universities that have made use of reverse mentoring. At the University of Paderborn, for instance, so-called *e-tutors* have been trained since 2011 to support university teachers in implementing e-learning scenarios. Following ZENKER (2016), the first implementation neglected the asymmetry of the communicative situation between teachers and student e-tutors, so that this caused problems for continuing the initiative. In successive iterations, the organizer took this challenge into account by requiring e-tutors and teachers to seal their commitment in advance by signing a written agreement. In addition, the programme demanded more transparent project management from the e-tutors, including clear milestones. The final training phase of this programme seems especially promising. This stage led e-tutors to become e-mentors who where to support the following cohort of e-tutors during their e-tutor programme (ZENKER, 2016). Other examples of reverse mentoring in higher education can be found within edu-

cational development. The OWL University of Applied Sciences started its project in 2010 based on a similar training concept. Experienced e-tutors work in the projects in tandem together with freshly trained ones (MERSCH & SEIBT, 2021). At the Ruhr-University Bochum, e-tutors have been trained since 2007 in supporting teachers. Support is provided by teams of two e-tutors each. These positive experiences even led to the allocation of additional, sustainable funds towards the programme, so that more interested students could be educated as e-tutors (HENZE & CRAMER, 2012).

1.3 Change Agents

According to HAVELOCK's *Change Agent's Guide to Innovation in Education*, a change agent is "a person who facilitates planned change or planned innovation". (HAVELOCK, 1973, p. 5). Conferring to ROGERS' (2003) ideas about the adoption of new technology, change agents play an important role in this process because they influence clients' decisions about innovation in a desirable direction. In universities as well, where the clients may be teachers, this direction depends on various factors, including university management's strategic guidelines regarding teaching quality development. In this context, change agents should be familiar with these strategic directions as well as endorse them, at the same time providing support and being a resource for change. Change agents provide a "[...] communication link between the resource system with some kind of expertise and a client system" (ROGERS, 2003, p. 368). With their expertise, change agents are able to translate the terminology of the resource system into the language of the client system. Ideally, they raise awareness of the change, they analyse needs and diagnose problems related to it, and they support both shaping of intentions as well as their transforming into action. Successful change agents do this with a consistent customer focus and an effort to maintain contact. This contact can be better established if clients perceive change agents empathetic and credible, indicated by their expertise (ROGERS, 2003).

2 Intervention

The principles laid out above were put into action at the University of Bern in summer 2019. The initiative, set out to enable a cultural change in teaching through experimentation with digital technology, was built on three pillars: senior students' training to become experts in technology-enhanced teaching, their deployment as eCoaches in the context of reverse mentoring within the institution, and a call for application to encourage teachers to realize innovative learning scenarios and to apply for support by an eCoach for this purpose.

2.1 Training eCoaches

Following the idea of reverse mentoring, staff of the central support units, i. e., the Educational Development Unit and the E-Learning Centre designed the eCoaches training programme. Members of the afore-mentioned units have coordinated and led the workshops and constantly have been evaluating and further developing them. This is an essential feature to ensure thematic and personal proximity between central units and eCoaches as well as the eCoaches' commitment to the strategic guidelines of the university management. Development and implementation of the training programme was coordinated by the project manager who was the central contact person for staff and participants. The project manager also acted as the key person within the participants' community of practice after the initial training programme, when the eCoaches were set out support teachers. This social configuration supports the important *communication link* mentioned before. The eCoaches' qualification profile includes three areas: development of effective learning scenarios, using digital technology to support learning processes and communication and coaching skills.

After a call among senior students, 160 students applied for the training, of which 12 were selected. The first cohort of eCoaches started their training in February 2020 – six weeks before the pandemic-related university closure in Switzerland. The training programme had initially been planned as a face-to-face course and although the rapid switch to purely online teaching was perceived by many as challenging, the new situation soon proved to be an advantage. For instance, the intensive use of digital tools during the pandemic served as a live example of a technology-enhanced learning scenario, which allowed participants to experience this scenario first hand.

This aspect and other elements related to virtual eCoach training promoted an awareness of the strengths and weaknesses of this form of learning. Participants at the training invested a workload of 150 hours, divided into 14 modules during a four-month training period.

2.2 Innovative Learning Scenarios

GARG & SINGH (2020) refer to factors that might threaten the success of reverse mentoring. For example, if organisations have rigid hierarchies and if the mentees (older yet less experienced colleagues) strongly tend towards exploitative or egocentric behavior, reverse mentoring may fail. In order to minimise the risk of project failure due to the aspects mentioned, we have made it mandatory for teachers to submit an outline of their teaching project when applying for support by an eCoach. This procedure led to great commitment on the part of the applicants. Received applications were subjected to an elaborate selection process, for which criteria included potential for innovation and low likelihood of exploitation of the eCoaches, e. g., seeing them as low-cost labors. We carefully matched each teaching project with a suitable eCoach.

In order to promote the programme, we produced a flyer that the vice rectorate education e-mailed to the entire teaching staff for the first call for application. A website provided additional information for interested teachers. In order to apply for receiving support by an eCoach teachers had to submit their contact data as well as information about the intended teaching project, such as the nature of the project (revision vs. new development of a learning scenario), the teacher's previous experience with educational technology, the aims of the innovation, their previous experiences with collaborative educational development and possible preferences for specific eCoaches.

Within the three-month application window, we received 45 applications, some of which were later withdrawn for various reasons. Projects were evaluated according to the following criteria:

- workload and schedule to match the eCoaches' operating period
- innovation in conceptualizing a new course or new developments

- focus on conceptions of teaching and learning (vs. revision of presentation slides etc.)
- innovative/exciting and feasible projects
- any preferences for specific eCoaches
- faculty affiliation (taking into account possible synergies and beneficial combinations between participating teaching projects)
- matching with competencies/skills of the eCoaches

Twenty-eight applications remained on the shortlist, of which 12 were finally selected. Central support services offered the teachers of the remaining 16 applications individual project coaching of a smaller scale.

3 Evaluation

One of the main objectives of the eCoach initiative is to promote and support digital transformation in education. However, evaluating the impact of such a programme is challenging as this goes far beyond asking participants how they liked the training. According to KIRKPATRICK's model for the evaluation of training programme (KIRKPATRICK & KIRKPATRICK, 2006), happy sheets are often used for assessing the participants' immediate *reaction* since they require only low efforts. By contrast, on a different, second level, *learning gains* are usually assessed through examinations, however, deriving valid conclusions on learning would require at least a pre-post assessment. The model's third stage, actual *behavioral change*, is often being evaluated by behavioral observation or by interviewing superior executives in organisations. At last, a level-four evaluation would investigate the programme's impact on the *organisational level* as well as the additional value created by the training. Appropriate evaluation methods at this latter level are usually time-consuming and often expensive.

For the University of Bern's eCoaches programme, we have evaluated the participants' reactions (KIRKPATRICK's first level) through feedback after every module. For finishing each programme module, eCoaches submitted finished assignments, such as a structured guide, a personal checklist for a specific coaching session or an

instructional video on one of the programme's topics. The quality of these products, in addition to a written reflection on their personal learning process, served as evaluation on participants' learning gains (KIRKPATRICK's second level). Whereas no evaluation was carried out at the organisational level (KIRKPATRICK's fourth level), we evaluated the eCoaches' behavior related to the programme (KIRKPATRICK's third level) by assessments of the teachers supported by the eCoaches.

3.1 Method

Two focus-group discussions were organised for the summative evaluation of the pilot eCoaches programme in 2020–2021. A total of nine out of twelve teachers participated in these discussions, six in the first focus group and three in the second one. The remaining three teachers provided their responses by email. Due to the pandemic situation, both focus groups were conducted online via Zoom. In addition to the facilitator, a support person was present who took minutes and answered participants' potential questions about handling Zoom technicalities.

Planning and implementation of the focus groups was based on the recommendations by KRUEGER & CASEY (2015) and by BENIGHAUS & BENIGHAUS (2012). First, participating teachers were introduced to the context and objectives of the focus group. Facilitators informed them about the recording of the interview and the subsequent use of the data gathered. After a short round of introductions the conversation was launched by means of an icebreaker question. The main part of the focus group discussion included questions about the eCoaches' training, the perceived quality of the cooperation with the eCoaches, organisational questions and a question about the impact of the eCoaches programme on teachers' teaching. At the final phase, the facilitator summarised the group's results according to his perspective in order to provide participants with the opportunity to comment on, clarify or put into perspective specific aspects mentioned.

The analysis of the discussions was based on the co-facilitator's minutes, the facilitator's interview summaries and the audio recording of the interview. We did not take verbatim transcriptions of the conversations due to time constraints. The texts were analyzed using content-structuring qualitative content analysis according to KUCKARTZ (2014). Categories were formed according to a deductive-inductive procedure. From the interview guide, the categories *Training of eCoaches, Quality*

of Collaboration and Organization of the eCoaches programme were used deductively. Additionally, inductive categories (in-vivo codes) were extracted, especially from the co-facilitator's minutes. Subsequently, the text documents were coded along the deductive-inductive category system. The results of this coding process are presented in aggregated form in the following.

3.2 Results

Overall, results of both focus groups reveal a high level of satisfaction among the teachers, regarding all three main areas of content addressed during the interviews.

3.2.1 Training

Teachers judged the training provided by the staff of the central units as useful and comprehensive. The same evaluation applies to the eCoaches' competences in the areas of counselling and communication, teaching and learning as well as digital teaching tools. The focus groups stressed the eCoaches' broad content knowledge, the high level of structured processes and the eCoaches' impressive commitment.

3.2.2 Collaboration

Most teachers interviewed described the collaboration with the eCoaches as pleasant, needs-oriented and enriching. Several teachers found working with their eCoaches to be an inspiration and an occasion to take a closer look at their teaching. Input from eCoaches directly or indirectly led to the further development of their teaching scenarios. Related to this finding, teachers emphasised the relevance of documenting the development projects and the work done by the eCoaches, e. g., as checklists or short explanatory videos. According to the interviewees, these measures could make the change processes more visible to colleagues within the respective institute and make them institutionally permanent. The teachers also appreciated that their eCoaches had a certain proximity to their subject area. This situation enabled eCoaches to engage with the courses from a content-related strategic perspective, in addition to a technical-executive perspective. Overall, interviewed teachers wished for a somewhat broader view of tools, going beyond the Learning Management System used at the university (ILIAS).

3.3.3 Organisation

Regarding organisational aspects of the eCoaching programme, teachers were very positive about the general set-up as well as the cooperation with the programme's project management. They explicitly highlighted the well-structured and transparent organisation of the project, as well as the high level of commitment shown by the project management when selecting and training the eCoaches as well as the coordination efforts during the deployment phase. Respondents expressed great satisfaction that they were able to deploy their eCoaches with maximum flexibility within clearly defined limits. Making their current workload visible and agreeing on fixed time slots for collaboration enabled the eCoaches to better reconcile their roles as eCoaches with their own studies.

4 ... the future is ours to see

In contrast to the lyrics of that popular song with a dash of fatalism (and lots of stereotyping), the initiative presented here offers some interesting perspectives for the future of digital transformation in higher education.

4.1 Conclusions

On the whole, the implementation of the eCoaches programme proved to be an initiative excellent at stimulating a culture of experimentation and quality development in higher education. The key features to cause this include the following:

First, eCoaches can serve as crucial connectors between the individual teacher, relevant service centers and the learning organisation. They have proven to be relevant elements that link measures and interventions across structural boundaries. Second, eCoaches are not taken as an offence to the teachers who are positioned higher in hierarchy. Neither do the teachers involved perceive the reverse mentoring as humiliating, nor as a "therapeutic situation". Rather, teachers conceptualize the support by the eCoaches as learning by doing, supported young, smart and highly-motivated individuals. Some teachers even were surprised and excited about learning something new, an effect that has been reported in many organisations where reverse mentoring

had been implemented (O'NEILL, 2006). Third, staff development can happen on the fly, by producing a desired product such as an innovative learning scenario. This version of university teachers' professional development does not require their extra time. Teachers rather welcome eCoaches as a helpful measure to tackle their personal time constraints. Fourth, the eCoaches at our university attracted attention at the institutes and faculties. As soon as other staff members noticed that there was something unusual going on, the discourse about effective learning scenarios reached a higher level, also producing awareness necessary for innovations (ROGERS, 2003). Other teachers might get inspired and subsequently apply for an eCoach themselves. This way, teachers empowered by eCoaches ideally become the multipliers essential for the momentum necessary for change processes. Fifth, the eCoaches initiative at the University of Bern has realised a number of success factors for reverse mentoring, according to MARCINKUS MURPHY (2012): thoughtful planning and matching of eCoaches and teachers, sound training of the eCoaches, involvement of eCoaches in the matching process, use of technology (the focus of this initiative), support from central units, upper (university) management signaling the significance of the initiative, valuing the role of innovative teachers, serious project planning and management between eCoaches and teachers, and a careful selection of participants (on both sides). Sixth, in order to apply for an eCoach, interested teachers had to submit an outline of their project, a requirement that led to a great sense of commitment on the part of the applicants. Subsequently, each successful application was carefully matched with a suitable eCoach. This deliberate alignment between the requirements and goals of the project and the competences of the eCoaches is one of the key success factors of the whole initiative. A final success factor, in our view, was that the engagement of an eCoach was free of charge for teachers. No additional resources from institutes or faculties were required. However, both, eCoaches as well as teachers had to sign an agreement in advance to commit to the collaboration, tapping into their time resources.

4.2 Perspectives

The majority of reverse mentoring initiatives are driven by the idea of keeping senior leaders up-to-date with new technologies. However, in the context of a higher education organisation, there are many other areas that could be addressed through this mentoring schema. Topics such as student learning behavior, challenges in relation to exams or social aspects of studying could be covered by reverse mentoring.

According to MARCINKUS MURPHY (2012), the development of young leaders constitutes an important factor for reverse mentoring in the private sector. We think that this aspect of leadership development could also be beneficial in higher education. If this topic is taken into account within the mentoring programme, participating eCoaches could gain a better insight into the processes and structures of a university and thereby strengthen their competences as future change agents, scholars and teachers in the academic sector. For this to happen, we suggest following O'NEILL's (2006) recommendations for setting up an effective reverse-mentoring programme, such as to set clear objectives, identify specific assignment of duties in the partnership and defined rules of conduct, and develop measurable outcomes to determine programme effectiveness. In our programme as well, several eCoaches mentioned a certain tension between creative collaboration and role clarification. Based on this feedback, the programme's second cohort has already received guidelines and training on role clarification during their training.

4.3 Outcome and next steps

In sum, the eCoaching initiative can be considered successful so far. This is also reflected by its outcome at several levels:

First, the certification of successful work performance, the record of the eCoaches' qualification and their project documentations represent an attractive dossier helping eCoaches' further careers. Second, several faculties have hired eCoaches of the first cohort after the end of the teaching projects and have offered them temporary employment until the end of their study programmes. These, in our view, are the first signs of consolidation and thus of the desired sustainability of such initiatives (EULER & SEUFERT, 2005). And third, the new university management plans to anchor the eCoaching programme permanently by committing the various faculties

to it. In addition, the initiative has also sparked great interest outside of the University of Bern: Several other higher-education institutions are now considering implementing the same or similar models.

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Authors



Lic. phil./CAS Thomas TRIBELHORN || Universität Bern, Zentrum für universitäre Weiterbildung ZUW, Hochschuldidaktik & Lehrerentwicklung || Schanzenbeckstrasse 1, CH-3012 Bern

<https://www.hd.unibe.ch>

thomas.tribelhorn@unibe.ch



Dr. Roman SUTER || Universität Bern, Zentrum für universitäre Weiterbildung ZUW, Hochschuldidaktik & Lehrentwicklung || Schanzenbeckstrasse 1, CH-3012 Bern

<https://www.hd.unibe.ch>

roman.suter@unibe.ch



MA Sevgi ISAAK || Universität Bern, iLUB – Supportstelle für ICT-gestützte Lehre und Forschung der Universität Bern || Hochschulstrasse 6, CH-3012 Bern

<https://www.ilub.unibe.ch>

sevgi.isaak@unibe.ch