Research Papers

2023-10-10

Transnational Collaboration On Lifelong Learning Between Higher Engineering Education Institutions: A University Perspective

Jens BENNEDSEN
Aarhus University, Denmark, jbb@ece.au.dk

Geir Egil Dahle ØIEN
Norwegian University of Science and Technology, Norway, geir.oien@ntnu.no

Recommended Citation

TRANSNATIONAL COLLABORATION ON LIFELONG LEARNING BETWEEN HIGHER ENGINEERING EDUCATION INSTITUTIONS: A UNIVERSITY PERSPECTIVE

J. Bennedsen [1]
Dept. of Electro- and Computer Engineering, Aarhus University
Aarhus, Denmark
0000-0003-3014-7567

G. Øien
Center for Science and Engineering Education Development, NTNU
Trondheim, Norway

ABSTRACT

Lifelong learning (LLL) is in focus in all European countries. Workforce upskilling and reskilling are seen as central elements in ensuring national competitiveness.

Universities are main players in this effort but often find it difficult to find sustainable models for LLL activities, in terms of e.g., economy, student intake, and academic resources. Collaboration between universities can be one possible way forward to overcome such obstacles, and given the enhanced post-Covid digitalization is also increasingly made possible, even across borders. However, many universities also find such collaboration challenging, e.g., due to outdated legislation, lacking financial predictability, lacking

---

[1] J. Bennedsen

jbb@ece.au.dk

academic capacity, or other factors. Studies done by the authors indicate that universities' perspectives are seldom present in the literature when barriers and enablers for LLL participation are analysed. This motivates us to particularly consider a university perspective here.

This paper analyses responses to a questionnaire sent to 28 Nordic and Baltic universities, collecting information about successes, opportunities, and barriers for formal (i.e., ECTS-awarding) university-level LLL with professional content within engineering and technology. The respondents were management representatives representing an institutional view and having good knowledge of the institution's LLL offer (e.g., further education centre managers and LLL coordinators). 19 institutions answered, mostly with free text. Our analysis is done following constructivist grounded theory using an open and focused coding approach. The main aim is to identify the main barriers and success factors seen by the universities for upscaling LLL activities, and subsequently to suggest strategies for alleviating barriers and facilitating success factors.

1   INTRODUCTION

Lifelong learning is not a new concept. It emerged in the late 1960s and early 1970's; the European council published a series of 15 studies called *Permanent Education* (Jean-PierreTitz 1995). UNESCO (United Nations' Educational, Scientific, and Cultural Organization) published a report called Learning to be: the world of education today and tomorrow *where the commission laid stress above all on two fundamental ideas: lifelong education and the learning society. Since studies can no longer constitute a definitive 'whole', handed out to and received by a student before he embarks on adult Life, …, educational systems must be thought out afresh, in their entirety, as must our very conception of them.* (p. xxxiii (Faure et al. 1972)). In the early 1990s, there was a renewed interest in lifelong learning, which was observed in both Europe and the United States. This renewed interest was brought about by a new wave of studies and reports that helped popularize the concept of lifelong learning. It also became a topic of national policy discussion, especially as the world faced increasing global competition and economic restructuring towards knowledge-based industries.

Lifelong learning is a broad term that presents a challenge when it comes to defining it in a specific manner. Its association with other similar concepts, including but not limited to lifelong education, permanent education, recurrent education, continuing education, adult education, learning organizations, and the learning society (a society where learning is all-encompassing), adds to this difficulty. While some individuals perceive lifelong learning to involve learning from childhood and early schooling, others view it as an ongoing process of adult education. In the EU, the definition of LLL is: *Lifelong learning encompasses all learning activities undertaken throughout life with the aim of improving knowledge, skills and competences, within personal, civic, social or employment-related perspectives.*(Eurostat 2022) In this paper, we will have a narrower focus on formal learning taking place after a learner's initial education and offered as credit-giving activities by higher education

institutions. This is a subset of what the EU calls Adult learning. However, since the general term used in the call for papers is Lifelong learning, we will use that term in this paper.

A lot of research has been done on identifying enablers and barriers for adult learners to engage in lifelong learning (see e.g. (Roosmaa and Saar 2017)). Barriers have been classified as either *institutional* (encompassing institutional practices and procedures that discourage or prevent participation), *situational* (covering barriers tied to a person's life situation), *dispositional* (referring to personality traits or personal qualities) (Cross 1981), or *informational* (lack of availability and awareness of relevant information) (Darkenwald and Merriam 1982). Broadly speaking, although there are nuances and differences between countries, different groups of learners, etc., the majority of studies indicate that the two most important barriers for adult learners to engage in LLL are *time* and *cost*. These two barriers can combine institutional, situational, and dispositional aspects.

However, education providers' perspectives – including research on barriers and enablers for engaging as a provider of LLL offerings - seem to be mostly lacking or are under-communicated in the literature. Most research papers found on LLL seemingly make the implicit assumption that a relevant menu of LLL offerings is already available, and then go on to discuss barriers and enablers for participation as seen from the learners' perspective. Very few studies have been found on barriers and enablers for providing LLL offers, as seen from the providers' perspective (an exception is (Aerts et al. 2020), which studies factors that affect LLL both from the learners', employers', and universities' point of view). Furthermore, very few research papers have been found on how LLL offerings should be designed and delivered to maximize relevance for learners and employers and to stimulate participation.

2 METHODOLOGY

Our main research question is

> *What are the opportunities and challenges linked to (trans)national cooperation on lifelong learning seen from the university perspective?*

The focus of our research is the Nordic and Baltic countries since they have a quite common structure and culture of education.

An obvious way to collect data that can help us answer the research question would be (semi-structured) interviews. However, to get more data points and due to time constraints, we decided to send out a questionnaire with mostly open-ended questions focusing on 1) successes, 2) unused/little-used possibilities for offers, 3) ideas for new offers, and 4) barriers to the facilitation of lifelong learning. All four areas focused on three spheres of influence on lifelong learning: offers where the institution itself controls the offer (called *institutional*), offers where several institutions within the same country influence the offer (called *national*) and offers where several institutions from different countries influence the offer (called *trans-national*).

2.1 Respondents

The questionnaire was sent out to 28 Nordic and Baltic universities, all members of the NORDTEK network (www.nordtek.net). An email invitation was sent to the institution's representative; typically a rector or a dean from the institution. The questions were designed to be most easily answered by a person with good knowledge of the institution's offer within LLL (for example a manager of a further education centre, or a lifelong learning coordinator). If an email invitation recipient judged someone else to be in a better position to answer the questions, (s)he was asked to please forward our invitation to this person.

Table 1: Invitations and answers per country

	Finland	Latvia	Norway	Denmark	Sweden	Island	Estonia	Total
Invited	7	3	4	2	9	2	1	28
Answered	3	3	2	2	8	0	1	19

Apart from the open-ended text questions, a few background questions were added focusing on the use of digital learning in LLL, and the origin of new initiatives for LLL (top-down or bottom-up).

2.2 Analysis

The 19 responses were analysed based on a qualitative exploratory theory, using an open and focused coding approach (Stebbins 2001). The purpose of the analysis was to find common themes for opportunities and challenges wrt. institutional, national, and transnational LLL. As the data was answers to open-ended text questions focusing on the themes, we used a more focused approach to coding than e.g. Charmaz's constructivist grounded theory framework (Charmaz 2014)

3 RESULTS

In this section, we will analyse the responses based on the three spheres of collaboration: Institutional, national, and transnational. In addition to that, we will focus on general questions like the strategic focus of the institutions, and their teaching models.

3.1 General results

Half of the universities have a strategy for LLL. Many of the strategies have a focus on finding ways to "do" LLL. NTNU writes as an example *Action 12: NTNU must clarify responsibilities for its EVU activities* ('EVU' is the Norwegian acronym for 'continuing and further education'). This gives the impression that the institutions are aware of LLL, but it is still in the early stages.

Adult learners have different obligations than "traditional" young students. Thus, more flexible ways of studying are needed, which seems to be something the institutions are also aware of. As seen in *Figure 1*, more than 40% of the institutions offer at least 50% of their LLL online. It looks as if most of the teaching for LLL takes place in a hybrid format.

At the universities, the new initiatives for LLL come mostly from individuals/groups of faculty members but the university management is also initiating LLL activities, see Figure 2.

All of the respondents focus (naturally) on funding. It is difficult to include LLL in the traditional university funding model (typically based on the number of produced ECTS points, graduated students, …). Many of the universities are members of university alliances funded by the EU, where the alliance has (part of) its focus on LLL and thereby funds (part of) the LLL offers. Other examples are funding by learners or businesses, as well as EU/national projects with a special focus on LLL.
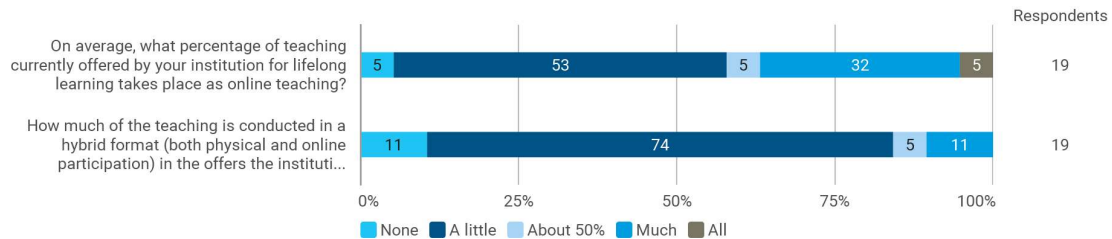
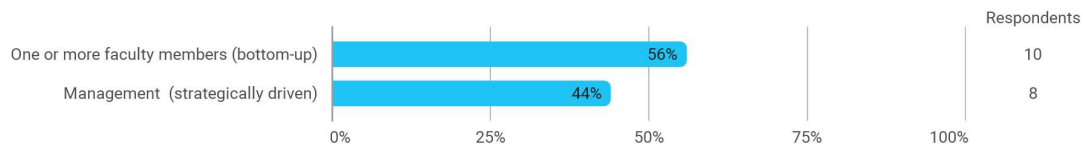

Figure 1: Digitalization in LLL.

Figure 2 Who initiates new LLL offers?

3.2 Institutional

Success factors and opportunities

All of the universities who answered have experience with LLL. Their discussion of institutional successes mainly focuses on two overarching dimensions: the target group and the delivery method. The degree of success is measured through customer satisfaction surveys, the number of participants enrolling and/or completing, or perceived societal impact. Success factors mentioned include long-term funding predictability, built-in flexibility in - and modularization of - the LLL offerings, active collaboration and relation-building with stakeholders in the private or public sector, cross-disciplinary collaboration between faculties or universities, and professionalization of the university's LLL services (e.g., wrt. marketing and branding, administrative support, development of digital platforms and tools). The same factors were also mentioned by several universities when discussing institutional opportunities (for strengthening LLL) that are so far unused or little used.

Several of the universities have good examples of LLL offers to support the fulfilment of competence demands for targeted professions. Typically, however, these are not in engineering-related topics, but in topics that fulfil requirements for teachers (primary or secondary) or healthcare professionals. There were no reports of successful, institutional

offers within engineering, even though all the universities included in the survey have engineering programmes in their regular education portfolio.

The universities also experiment with new ways of teaching within LLL. Several talked about successes when using mobile learning or, more generally, online, asynchronous teaching formats. Several also see experimentation with new delivery formats and pedagogical approaches, including micro-credentials, as one of the so far under-used opportunities for strengthening their LLL portfolio.

One respondent noted that flexible ways of participation could be an opportunity by allowing LLL to participate in "normal" courses on a listen-in basis. It could then be optional for the LL learner to take the exam or not (she could for example obtain a certificate of participation instead).

Challenges and barriers

The absolutely most problematic factor reported by respondents is the financial aspect, which is closely related to the current funding or business models and legislative regimes for LLL, as well as to market needs. There are examples of national rules where some LLL offers are state-funded and some are not, based on the topic – e.g., LLL in engineering is not state-funded, while LLL for teachers and nurses is. The currently available funding models are in general perceived as unclear, unnecessarily limited by legislation issues, not economically sustainable, and not reflective of the changing and increasing demands in LLL. Several of the universities also mention the "culture clash" between their usual "free" education and the LLL "market".

Some respondents also indicate that it is a challenge in itself for universities to track and understand the market needs and demands, both concerning content, format, and scope. This also means that it can be hard for universities to predict the attractivity of a given LLL offering and in particular the development of demand over time. Furthermore, the current development time of new LLL offerings is pointed out as a problem - a shorter time-to-market is needed to match the industry's expectations and needs.

Another common challenge is the lack of institutional resources, especially the time that academic personnel can spend on LLL. Their workload is divided mostly between research and teaching, where the teaching focus is mainly on the "normal" courses and students. Furthermore, respondents note that there are currently no strong incentives or career recognition for most academics to change this *modus operandi* to accommodate more LLL. Some also mention that university teachers typically do not have pedagogical competence on how to teach or supervise learners who are at a later stage of their career.

The lack of a general university strategy for LLL is also mentioned by some as a challenge (see 3.1). It is pointed out by some respondents that such a strategy should involve strong, long-term collaboration with clusters of strategic partners, and a stronger emphasis on scalable commissioned education if it is to be economically sustainable and viable in the long run.

One respondent focuses on the quality of LLL offerings. A lot of free courses have been provided with local or European money, but many of the courses were perceived to be of bad quality. This may demotivate learners from participating in paid LLL courses.

3.3 National

Success factors and opportunities

Some of the institutions have experience in participating in national LLL offerings where they are part of a consortium of universities. Almost all of these experiences reported are positive. Two good examples are the flexible LLL offer from IT-Vest, a collaboration between Aarhus University, Aalborg University, and the University of Southern Denmark (it-vest 2023), and FiTech, a collaboration between seven Finnish universities of technology (FiTECH 2023). Success factors mentioned include the facilitation of a good collaboration environment between participating universities, active national governance and strategy development on LLL, and – as in the institutional case – flexible delivery and modularization of the LLL offerings. For flexibility and modularization, one respondent suggested that there could be value in the development of a joint national platform where smaller LLL modules could be marketed across institutions and chained together in cross-institutional learning paths progressing towards desired competence profiles.

The most important benefit seen by the respondents in going from an institutional to a national LLL offer is the possibility to widen the range of choices for learners so that they can have more chances to fulfil their demands and requirements for competence. This effect is in fact examplified clearly within the field of technology and engineering: Whereas no institutional successes were reported in this field, both the above examples of successes on the national level are within technology and engineering, as are several others. Management, artificial intelligence, sustainability, and digital transformation are also mentioned as topics where there is a market demand or societal need which can be better served through national collaboration.

National collaboration may also lift the burden for each university and make better use of the sparse resources. Some of the respondents find that collaborating with other universities makes it easier to develop and run courses and programmes based on the needs of professional networks and student associations. Lastly, several of the respondents find collaboration (e.g., university alliances) and joint platforms for marketing LLL to be a way to make the offerings more visible to potential students.

Challenges and barriers

Several of the challenges and barriers on the institutional level are also relevant on the national level. The most problematic issue related to national collaboration within LLL is again the financial aspect. Several respondents mentioned the (lack of) stability in the long-term financing of LLL. Some also focus on a (currently unmet) need for a national marketplace or marketing platform for LLL offerings.

Some of the respondents also point to a lack of stable market interest. As one respondent puts it: *When the labour market is cool, there is no money for LLL, when it is hot, there is no time for LLL*.

Competition and fragmentation among universities, the diversity of the higher education sector (consisting of both universities, university colleges, and other types of institutions), as well as national regulation guidelines are also mentioned as barriers. Regulation issues, e.g., accreditation demands, can make collaborations very difficult. In addition, several of the other challenges and barriers which were mentioned on the institutional level also constitute barriers on the national level, e.g., the lack of institutional resources, and the too-long development time of new LLL offerings.

3.4 Transnational

Success factors and opportunities

In general, it is fair to say that not many of the respondents seem to see much potential in transnational collaboration. This is the survey question with the fewest number of answers, and several respondents comment that they do not have a strategy for international collaboration on LLL. However, some point out that a joint platform for marketing LLL offerings could just as well be transnational as national, and that this could give even more shared offers for learners across borders. Sustainability, technology, and digitalization are mentioned as areas where there could be potential.

Furthermore, several of the universities participate in international (notably European) university alliances and mention a potential for LLL collaboration within these alliances. To what extent the alliances - which are still relatively young - will be focusing on LLL remains to be seen, but they do provide an organizational frame around the collaboration. Other respondents give examples of MOOCs where the platform (e.g., FutureLearn) enable the student to choose between several offers from different institutions.

Two respondents have a concrete example of an offer in a "hot topic" (in this case AI), where some of the students can get credits but the offer is open to everyone (from around the world, and at all ages).

One of the universities experiments with micro-credentials, and ways to bundle these into a complete program. They see a collaboration between them and other universities in offering micro-credentials as a way to make more offerings and thereby give students a better and larger choice of topics.

Challenges and barriers

Most responding universities do not yet have a strategy for international/transnational LLL. LLL is in general not seen as very important and where it is, an institutional focus is often seen. Most of the aforementioned barriers to institutional or national success still hold also in an international perspective. In addition, respondents point to the increase in administrative and legislative obstacles (e.g., evaluation of prerequisites for international LL learners, national legislative differences) when one goes international as a potential

showstopper for transnational collaboration on LLL. In particular, LLL legislation typically focuses on national requirements and demands which may vary between countries.

Furthermore, understanding the international market needs and matching them to one's institutional strengths is mentioned as a prerequisite for successful international LLL operation.

A final challenge would be to find a way to promote LLL offers across national borders to LL learners. Several mention a current lack of a common, transnational (e.g., Nordic or Nordic-Baltic) platform to promote offers. Also, there is a need for making it easy for learners to collect credits and combine these into a degree if needed.

4   DISCUSSION AND RECOMMENDATIONS

Universities have a long history and are used to slow changes in their student intake. They have been teaching engineers for many years, and have an expectation about the number of new students (and that they will come). This is rooted in the funding model for all the universities in this study. On the other hand, LLL is considerably more unpredictable. Many of the obstacles are focused on how to tackle the dynamic "market" and the more "static" funding models. If universities are to succeed in becoming more active in offering LLL activities, there is a **need for funding models that acknowledge the different circumstances for LLL**.

The tradition from a university is that, once you have a permanent position, you are there "for life". Universities must accept that LLL activities are much more difficult to predict and place in "a five-year plan". **Universities need to be more agile and adjust their resources according to the demand**. It might be argued, given recognized global trends, that this also increasingly will be true for their regular degree programme portfolios.

The regional (or national) market for specialized (technical) LLL activities is small. Many of the universities can see that and are willing to engage in transnational collaborations so that a better balance between supply and demand can be made. In many cases, however, the legislation focuses on national demands and requirements (proving that you have the right prerequisites for a given course is often evaluated by the learner having passed another course, accreditation focus on national demands, teaching must be in a specific language, …). **Easier ways for universities to collaborate transnationally must be established**.

Universities also find it difficult to market their LLL offers. Several good national examples are seen (e.g. FiTECH (FiTECH 2023) or Part-time Master in IT (it-vest 2023)). It would indeed be beneficial if such **LLL platforms are extended to a transnational scope**, or to include more topics.

Universities are (slowly) starting to focus on LLL. The focus so far seems mostly to be on offers offered by individual universities. However, **university alliances (e.g., the European University alliances supported by the EU) can be starting points for transnational collaboration.** This is something that potentially can contribute to overcoming both the low or unpredictable number of students and the lack of teaching resources.

5   SUMMARY AND ACKNOWLEDGMENTS

We would like to thank the respondents for their time, and the NORDTEK institutions for their help when sending out the questionnaire.

REFERENCES

Aerts, Céline, Lynn Van den Broeck, Walter Daems, Eva Kyndt, Martin Valcke, and Greet Langie. 2020. "Lifelong learning for engineers – Tackling the hurdles." online, 2020. https://lirias.kuleuven.be/retrieve/615961

Charmaz, Kathy. 2014. *Constructing grounded theory*. 2. edition ed. London: SAGE.

Cross, K. Patricia. 1981. *Adults as learners: increasing participation and facilitating learning*.*Jossey-Bass classics.* San Francisco: Jossey-Bass.

Darkenwald, Gordon G., and Sharan B. Merriam. 1982. *Adult education: foundations of practice*. New York: Harper & Row.

Eurostat. 2022. "Glossary: Lifelong learning (LLL)." Accessed March 28. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Lifelong_learning_(LLL).

Faure, Edgar, Felipe Herrera, Abdul-Razzak Kaddoura, Henri Lopes, Arthur V. Petrovsky, Majid Rahnema, and Frederick Champion Ward. 1972. *Learning to be: the world of education today and tomorrow*. Paris, France: UNESCO.

FiTECH. 2023. "FiTech - for future tech talents ". Accessed April 18. https://fitech.io/en/.

it-vest. 2023. "Part-time master of IT." Accessed April 18. https://master-it-vest.dk/english-site/.

Jean-PierreTitz. 1995. "Council of Europe's Permanent Education project." *Vocational Training European Journal* III (6): 43-47.

Roosmaa, Eve-Liis, and Ellu Saar. 2017. "Adults who do not want to participate in learning: A cross-national European analysis of their perceived barriers." *International journal of lifelong education* 36 (3): 254-277. https://doi.org/10.1080/02601370.2016.1246485.

Stebbins, Robert A. 2001. *Exploratory research in the social sciences*.*Qualitative research methods, volume 48*. London: SAGE.