Chapter

The Future of Education: Strengthening the Relevance of Lifelong Learning

Tone Vold

Abstract

This chapter explores educational practices to increase work relevance in lifelong learning education programmes. The outlet of the analysis is the development of skills for change, and to lay the grounds for innovativeness and entrepreneurial behaviour in future organizations. For the Higher Education Institutions (HEI's), there are different pathways to shape and improve on their relevance to education for the work life. We examine how higher education institutions can consolidate their position in the future by agile attention to the development of the necessary skills that promote innovative and entrepreneurial behaviour. The primary argument is a need for a dynamic co-evolving relationship between the work environment and the fine tuning of educational content and educational practices in order to bridge the gap from curriculum to work context, and the probability of a meaningful application of educational content at work. The qualitative data is collected through interviews with students and their colleagues and superiors within two different organizations in Norway. From the analysis, we suggest a conceptual model providing further details of these "relational interdependences" between educational and work factors and outline some basic underlying factors in the work environment that help shape the relevance of skills needed in work life.

Keywords: work relevance of education, lifelong learning, knowledge production, organizational change processes, knowledge economy

1. Introduction

In recent decades, the concept of relevance has attracted quite a bit of policy attention. The majority of the intellectual traditions studying "educational **relevance**" focus on the intrinsic factors and characteristics of the educational curricula within Higher Education Institutions (HEI). This chapter explores how work organizational factors also contribute to help shape the relevance of adult higher education, a topic we believe is vastly neglected in the extant literature.

In this chapter, we will derive ways of suggesting an enhancement of the relevance of higher education for a rapidly evolving work life.

Several key policy documents help to underscore the political significance of the work life relevance of higher education in general and, in particular, the need for effective higher education lifelong learning schemes. In the report, "Promoting the relevance of higher education" [1], commissioned by the European Commission, the authors formulated three main objectives for higher education used as a measure of relevance, adding *sustainable employment* and *personal development*, which is about individual, sustainable employment and active citizenship. In the white paper from 12th March 2021, the Norwegian government states that higher education needs to meet the needs of both present and future work life [2]. This white paper further states that this is about developing and utilizing new solutions that are sustainable, and also support the advancement of the scope and quality in lifelong learning. It is about what and how students should learn, and that this includes not only factual knowledge, but also generic skills, such as skills for a better collaboration in work life, for continuous self-learning and for managing the technological and managerial processes of change that are now the norm in organizational life due to the rapid digitalization of the societies. In addition, they point out that there is also a question about how and to what extent the HEIs support the students, both during and after their studies, by preparing them for their return as future employees/students for lifelong learning purposes.

This preparation is about enabling the students to assume a degree of relevance of their education.

In this book chapter, the focus is on the various types of the involvement of the students in curriculum activities, with an added focus firstly on their ability to tie new knowledge to their experiences from work life, and secondly to prepare for an understanding of how they may utilize new knowledge in their work life.

We therefore propose that in order to utilize the knowledge the students/employees draw from the more "generic" courses in adult HEI programmes, we need to not only focus on the university, but also to look more carefully and closely at the employing organization's characteristics, and to the factors leading to a "meaningful" utilization of certain types of new knowledge and skills. Hence, this discussion naturally leads to the following research question:

> *What are the factors that enable the facilitation of educational relevance in organizations?*

In order to help answer this, there is also a need to explore the theory and previous research on "educational relevance", on what constitutes relevance for the students and for the organizations. Likewise, how to teach a curriculum to make it relevant, and how to facilitate for the students to acquire this knowledge in such a way that they are able to utilize it, is what is required of the HEI, both now and in the future, as the number of adult students returning to campus is increasing [3].

2. Methodological approach

The empirical method applied is that of a comparative case study. Two different approaches to meeting the requirements of adult students' need for work-relevant education have been investigated, a Health Manager Education (bachelor's degree programme) and a Knowledge Management study programme (half year programme) both offered at the Inland Norway University of Applied Sciences,

Norway. The reason we chose these two case studies is that it allows us to more carefully examine the impacts on the relevance of two educational approaches within the same country, the same county and the same higher education institution, but in two different work life settings, thus keeping constant some of the important factors that could have an effect on the findings from the two case studies.

Qualitative data has been collected through interviews using a semi-structured interview guide [4–6], with the respondents divided into three categories: the main respondents, which are the students/employees, the secondary respondents, which are their managers and the tertiary respondents, which are co-workers and/or subordinates. The interviews were recorded and transcribed. The data (the transcriptions) was analysed using NVIVO using a *hermeneutic* approach [7] (p. 45). The approach was in line with *content analysis* and *latent analysis* [8] (p. 9) rather than "manifest analysis" as we this time needed to go beneath the surface and interpret the meaning of the statements [8] (p. 9). We started out finding themes and from the data we labelled codes, and collected the codes in documents. The analysis and discussions will unveil a suggested model for enhanced work relevance for adult students. Lastly, we will present our conclusions and avenues for future research.

3. The new context of academia and its relevance

Academia is no longer an "ivory tower" (p. 313) [9], but instead an organic part of a system to support the development of innovation, entrepreneurship and sustainability in an ever-developing knowledge-based society and work life. The literature describes the relationships between the various systemic "partners", and while governmental white papers are providing guidelines as to how academia should adapt within this system and provide a relevant education for an ever-evolving work life, the literature describes the importance of the cooperation between work life and academia.

Etzkowitz and Leydesdorff [10] developed the triple helix model, depicting how the universities, with funding from the government, could provide education and research for the industry to produce goods for a profit. In traditional academic curricula at universities (and other higher education institutions), the organizations and students may influence the curriculum to a lesser extent, as the courses are to be more generic to suit several different organizations.

Carayannis and Campbell [11] developed what is called the "Mode 3" (p. 202) of knowledge production, and introduced both a quadruple and quintuple helix. The quadruple connects civil society into the helix, and by adding the natural environments of society and economy into the equation as socio-economic opportunities that bring in sustainable development and climate change issues. Within the helices, the political system influences the research and development system (R&D), the science and technology system (S&T), the economic system and the educational system. With the emergence of digitalization and digitalized work forms in organizations, the markets change rapidly, and what may have been a minor local market may now be a global market due to new ways of marketing, for instance, through social media [12]. Consequently, to even a greater extent than before, markets may impact on organizations. It is therefore important for academia/higher education to equip organizations to not only handle, but even create, most of the opportunities that arise. In the Nordic countries, academic adult education has contributed towards developing individual competencies and a high-quality education, as well as lifelong learning

[13]. This allows for the development of democratic processes, which together with an "investment in human capital" and "constant innovation in the public sector", contributes towards "sustainable entrepreneurship" [13] (p. 13). Regional Innovation Systems (RIS) rely on higher education regarding research and development, with the roles of higher education within these helices being to supply basic and applied research. Within the quadruple helix model, there is a strong focus on co-opetition, co-evolution and co-specialization [14]. This has been enhanced by the 4th Industrial Revolution (4IR), which blurred the lines among the physical, digital and biological spheres [15]. According to Schwab [15], there is also a responsibility that lies with the academic institutions (as one of several stakeholders) to take part in the work on understanding emergent trends in order to shape the future. Indeed, the future of education itself has had a major development due to the evolving technologies enabled by the 4IR, such as Massively Open Online Courses (MOOCs) and Learning Management Systems [16]. However, there are still some 4IR technologies that are not widely exploited by the educational sector, such as Augmented Reality, Virtual Reality and Mixed Reality [17, 18].

In Norway, the government has initiated support for the higher education institutions, such as universities, to enhance work relevance [2]. Nevertheless, the influence is not only *from* the political system, as the political system has received input from the organizations, the markets, the higher education systems and other stakeholders. When the markets, stakeholders and/or the technological development "require" innovations, this may put a pressure on the political system, which in turn will influence the R&D/S&T system and thus the higher education system. Indeed, our research shows the incremental and iterative development that is a result of a political system, employer organization and higher education institution cooperation and collaboration on developing an education that would cater to the changes initiated from the government [19]. The Mode 3 thinking with the systemic approach to learning and developing does recognize that the learning partners include customers, suppliers, competitors and other companies, in addition to the universities. Even public innovation within the service provision has documented innovation processes, like within the development of services and systems interaction, and in how they provide their services.

From being an institution of knowledge production and education, academic institutions have become academic entrepreneurs in a coalition with industry and other organizations. Academia has produced "academic spin-offs" (p. 7), such as firms that exploit scientific research results, newly developed technologies and other inventions [20]. These are noticeable within several different application areas, for instance, in biotechnology and industrial software. The trend of entrepreneurship education developing a more collaborative, student-centred approach to teaching and learning has spread into other disciplines [20]. Based on an entrepreneurial mind-set, Kolb's [21] theory on experiential learning and Dewey's [22] "learning by doing" and building on previous experience, the impact has spread to other study programmes.

However, Kaloudis et al. [20] point out the importance of combining both traditional and student-centred pedagogical approaches. This will support developing the reflective processes needed to "learn through an experimental approach, which is central to the development of an entrepreneurial mind-set" (p. 92). This mind-set is important for supporting lifelong learning [20]. This may imply an opportunity for returning students through their work life. Also, emerging trends within innovation research are features such as co-learning and co-production [20,

23], which imply that this needs to be introduced and practiced within the frames of a university.

Nonetheless, as the white paper [2] also states, there is not only the transfer of knowledge *from* the university *to* the industry/organization, as the employees are the experts in their own field who have insight into processes not accessible to the university. Some of the time, the industry/organizations need "learning partners who can help them find, digest and make use of relevant knowledge" and "who can help them come up with new ways of identifying and tackling challenges and opportunities" (p.103).

For example, The World Economic Forum claims that some organizations recognize the shift towards a more changing work life due to the digitalization and vast opportunities this has provided [24]. Some of the organizations interpret the rapid changes to mean less of a need for education, but a higher need for the particular generic skills necessary for the management of innovation and organizational change processes. Bolli and Renolds [25] argue that these are skills that are best taught at institutions of higher education and should hence strengthen the position of the universities.

4. The role of academia's contribution in the knowledge economy

Powell and Snellman [26] define the knowledge economy as "production and services based on knowledge-intensive activities that contribute to an accelerated pace of technological and scientific advance, as well as equally rapid obsolescence" (p. 199). They further state that "the key component of a knowledge economy include a greater reliance on intellectual capabilities than on physical inputs or natural resources, combined with efforts to integrate improvements in every stage of the production process, from the R&D lab to the factory floor to the interface with customers" (p. 199). This implies an interest towards learning and knowledge development, distribution and management, and therefore an enhanced focus on how to support this.

Indeed, Keep and Mayhew [27] claim that solving problems and working in teams are just as important as theoretical knowledge and technical capabilities. Analytical thinking that supports analysing information to address work-related problems and issues, selecting and utilizing methods and procedures appropriate for learning and teaching within the organization, decision-making and creative and alternative thinking regarding developing novel solutions to work-related problems are becoming increasingly important.

According to Janssen [28], "innovative work behaviour"(p. 287) is about applying novel ideas in a work environment, as it is also about enhancing work performance and finding new ways of working, utilizing technology in new ways and adopting new technology and new skills [29].

In the Norwegian white paper "Education for Change" [2], it is suggested to have a tighter coupling between higher education and work life, in order to improve the understanding from work life as to what they may expect from students, and for higher education to comprehend not only the present and pressing needs of the work life, but also the future needs.

However, according to Bolli and Renold [25], it is of fundamental importance to ask where it is best to learn a specific skill, that is at work training or in an organized course setting at HEIs or other private providers. In their study, they investigated

what types of skills HEIs have as an advantage in teaching, as opposed to learning them in a work training setting.

In the next section, we will address the literature that has investigated how and to what extent the opportunities for facilitating for innovative behaviour and support organizational changes are developed in higher education.

5. Academic adult education and the comparative advantage of higher education

Regarding work-based learning, Raelin [30] claims that a theory is needed regarding learning from practice. The learner may be introduced to theory after an experience "in order to question the assumptions of practice" (p. 564). He further states that: "The teacher's intentions and the students' understanding are best achieved through action" (p. 564). This implies that action is needed to help understand the implications of the theory. Raelin's critique of "conventional learning methodologies" is that the knowledge conveyed in the classroom is explicit, whereas some of the experiences they may face outside of school may provide the students with tacit knowledge.

Even so, Bolli and Renold [25] claim to have evidence for higher education institutions' advantage regarding teaching strategic management, innovation, human resources, organizational design and project management.

Raelin [31] points out the social context of learning. In organizations, one may form what Lave and Wenger termed "Communities of Practice", in which members of the organization work together, discussing and debating, to solve a "problem" [32, 33]. This social context will also represent situatedness within organizations. This situatedness is addressed in academia by case solving, role playing, gaming and the use of tools that enable a work life resemblance [34–38].

Dewey's "learning by doing" [22, 39] is also about practicing and experimenting, as students often find a discrepancy between what they have learned as theory, and how this appears in action. This may resemble what Argyris and Schön (1996) present as "espoused theory" and "theory in use", "espoused theory" being what the students bring from being taught a theory into putting it into action. Still, the action may bring different or modified versions of the theory; hence, the need to employ "theory in use". According to Raelin [30], these theories may be "aligned" through experimentation in the classroom (such as role play, simulation, exercises) or in real-life settings [40].

The support that academia can offer may reside within the areas of a willingness to learn [41–43] and learning to learn [44]. This corresponds with the OECD soft skill to "acquire new knowledge" [45, 46]. A "willingness to learn" may also be tied to self-efficacy [47] and intrinsic motivation [48]. Karatas et al. [49] have interpreted the definitions by Ryan and Deci [46] and Deci and Ryan [50] regarding intrinsic to be a "motivation that originates from within the individual and results in enjoyment of the process of increasing one's competency in regard to particular academic tasks" (p. 162). Learning also requires reflection processes [51, 52]. In HEIs, reflection is generally a part of the educational process [53]. *Reflection* is therefore something that we can include as a part of the training at HEIs. In fact, training for reflection and preparing for the students becoming *reflective practitioners* [54, 55] may support utilizing reflection back on the organization. Raelin [30] claims that organizations rarely have time, nor prioritize spending time on reflections for learning in

organizations. Knowing how important reflection is for the learning process [21, 56, 57]; making reflection a part of routines may also support the development processes back into the organizations and aid in the process of becoming *learning organizations.*

Universities have yet another advantage in their pedagogical instruments that provide them with a comparative edge, as opposed to at-work learning. The utilization of pedagogical tools such as "e-learning, solving case studies and reflecting on work experience in school" aids in the development of the desired skill needed in one's work life [25]. Bolli and Renold also claim that factors like being able to be "presenting case studies of the workplace in school, presenting a survey in the workplace at school, making a learning contract and documenting the learning process in the workplace" enhance the universities' positions regarding the development of soft skills. This suggests a closer contact with the workplace and encourages the students to utilize the work experiences in their school situation, such as using examples and cases based on experiences from the organization, and also utilizing the new knowledge acquired at the university back into the organizations.

6. Organizational characteristics benefitting from learning in higher education

As our research has been on middle managers, both within the health sector and a private enterprise, we have sought towards other research done on educating middle management. Ballo and Dahl (2018) assert that an efficient pedagogical method should aspire to creating an association between the learning context and the work context, and investigate structures and processes within the organization that seem to forge this association. The structures in question are group structures and learning structures (such as learning methods). According to Ballo and Dahl [58], they "contribute towards developing the relationship between different learning and work-structures in the organization" (p. 12). This presupposes a focus on different processes and connections between phases concerning learning, and they propose the example of the transition from reflection and analysis to action [58]. They emphasize the fundamental importance of establishing learning and leadership as an integrated perspective for knowledge management at all organizational levels. The processes are management activities, knowledge management processes, work processes and learning processes at different levels within the organizations.

Ballo and Dahl [58] present two perspectives: 1) "managers participating in management development programmes take part in one or more learning processes" (p. 19) and 2) "management of work processes in organizations that offer [public] services also need to be understood as management of learning processes" (p. 19). Management that involves learning embraces both the organizational development and the employee dimension, meaning that combining the learning context with the work context is about adapting the work context in such a way that the learning processes for managers and their staff are a part of the work processes.

We can find an example of the association between the learning context and the work environment in our own empirical material. One of the case studies scrutinizes the Health Middle Manager Educational Programme at the Inland University of Applied Sciences, where it is deliberately required from the adult students (also health personnel) to apply examples from their own management experiences as illustrations for their learning in the adult education programme [59]. This pragmatic approach, and the specific work with their own real-life experiences and dilemmas,

ultimately led to a more reflective professional practice, as well as to specific changes at the workplace that were possible to trace back to the experiences and discussions from the educational programme [19]. The important point here is that the organizational factors enabled changes and can be described as an *articulated and conscious acceptance of the need to experiment, to test new methods and to change and develop the new practices and routines in the organization*.

Another example of coupling a learning context with a work context is shown in a research project investigating how a previous student who was training in a responsible manner was able to utilize their own workplace for practicing and implementing changes derived from the learning context [59]. This research also implies that a managerial position may be a factor that *enables bridging the learning context and the work context*. As a result, the organizations benefit from the soft skills taught and developed in this collaborative exchange, as the learner (employee) is able to actively convert the learning into organizational development processes.

An important additional argument here is that the learning does need to be perceived as relevant, not only in a work context, but also personally at the individual level [59, 60]. When, for example, a gap analysis within any organization recognizes the need for a particular kind of competency or knowledge in order to innovate and grow/change, the employee affirms this need and views the possibilities and opportunities for his/her career advancement and job satisfaction by acquiring the "missing" skill in an adult higher education setting; the chances for more targeted learning and its application within the organization are then clearly greater. In this way, the learning (of the individual) and the practicing (in the organization) become organically relevant to the organization, as they contribute to filling the needs for change and innovation, in the sense that Nonaka [61] describes innovation as: "a process in which the organization creates and defines problems, and then actively develops new knowledge to solve them" (p. 14).

The figure below exhibits a model depicting how the relevance of an educational activity at the individual student/worker level is shaped by distinct organizational structures and processes, as exposed in the argument above (**Figure 1**).

What the figure above indicates is that the person/employee/student is *a part of the organization* and thus may be a part of analysing and recognizing the competency gap that they will be contributing to filling in order to contribute towards innovativeness. In previous research, this interaction was actually observed and identified as an important factor for enhancing the degree of work relevance of adult higher education trajectories [19, 59]. This research illustrates that as active members of the organization, the employees contribute to shared cognitive realities of organizational needs and gaps, in which they see *themselves* as potential contributors/employees/managers. In turn, this provides the Personal Association [60] that develops into a "personal identification", that is one's own genuine interest in the educational field the employee pictures as important for the organization. In other words, the degree of employee autonomy and participation in the decision-making, and a shared view of the priorities, threats and opportunities in their organizations, is a key factor in shaping the relevance of adult education back into an organizational context.

It is also pointed out the importance for the organizations to commit to utilizing their employees' skills and abilities [62–64]. This will contribute towards a higher level of self-efficacy [64, 65], which helps to reduce the chances of having educated an employee who is less motivated [66] due to a low utilization of skills and abilities, and thus contribute to a turnover [62, 63].

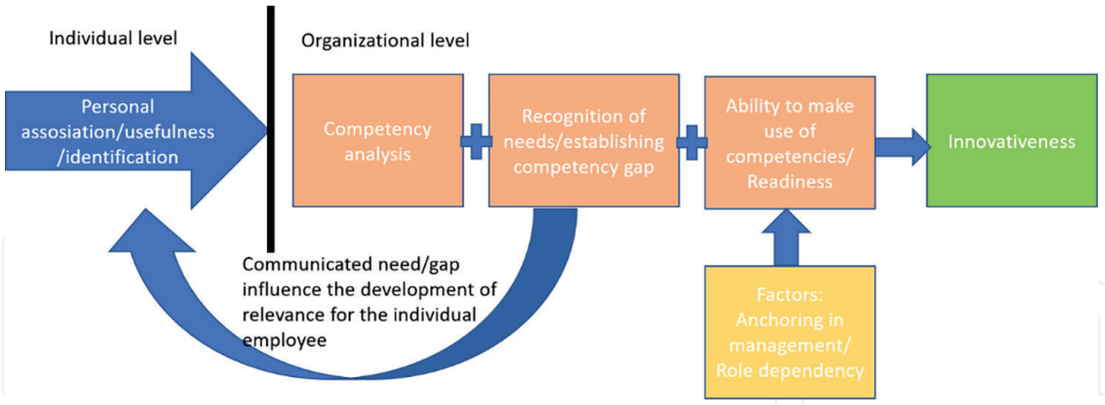

Figure 1.
The interaction between personal relevance and organizational relevance.

The students at the health care education found that *studying together* in the same educational cohort created synergies that they felt would benefit the organization [19]. Learning in teams and sharing the same educational experiences and theoretical concepts seem to support organizational learning [67], which again enables innovative behaviour. Arie P. de Geus [68] claimed that one learns faster when in a team. He explained that this was a matter of mobility, innovation and social propagation, insofar as being able to shift in a market, being able to innovate to survive and to need one another to perform, also claiming that skills should be preferred over "irreplaceable individuals", as this would demolish the community. At the same time, it is important to develop the individuals to their "full potential", since this enhances the innovative potential of a firm [68]. Though depending on its individuals' skills, team learning is a collective discipline that depends on the ability of discussing and maintaining a dialogue.

The case study on the student who graduated from the knowledge management programme at the Inland University of Applied Sciences, even though being on a close study of one individual alone and his reflections on the education programme he graduated from, the data shows that the way he worked within the organization resembles that of a team builder; he engaged his colleagues in the development for changes. In this case study, our main respondent included and engaged his co-workers for developing an on-boarding programme in order to reduce turnover and the time for training [59].

Our data also displayed a discrepancy in the middle managers' own perceptions versus the manager and the subordinates of one of students/employees. The student/employee interviewed reported—as did the other main respondents—on a high level of learning outcome, and also about having implemented changes. Yet, the managers and the subordinates only reported on minor changes. Digging deeper into the data, we notice that although the organizational position is described as "middle manager", the opportunities for major changes may be marginal due to several issues. On the personal level, the personal traits of the middle manager may influence the outcome of the desired induced changes. Resistance to change in an organization [69] may be due to communication (too much or too little), capacity within the organization and ability to empower the subordinates in order for them to execute any changes. Additionally, as mentioned by the manager, who is also the manager of one of the other main respondents, the ones who were able to induce major changes may be viewed as "over achievers" with exceptional talent for empowering their subordinates. This displays an interesting difference among the main respondents that should be

investigated further, for example regarding previous background and education, personal characteristics, career and personal motivation.

The education should thus facilitate for reflection and develop an understanding for the problem areas in order to develop solutions, while also developing capabilities for empowering subordinates to cooperate and collaborate in developing the solutions for the recognized issues. This implies utilizing real-life cases from their work life. Therefore, the workplace and their managers need to approve and support the process of recognizing potential improvement areas in the organization, as well as monitoring and supporting the process of implementing any change processes.

The figure below displays the interaction and exchange between the HEIs and the organizations. Within the organization the learner is an employee, while within the HEI the learner becomes a student. The HEI facilitates for learning about the different organizational learning issues (such as, for instance: knowledge management, empowering leadership, organizational change processes, innovation and organizational development processes). The lecturing emphasizes tying the learning to the students' workplaces, and encourages and supports recognizing issues from organizations. Hence, there is a requirement from the HEI that the assignments are issues unveiled at the students' workplace. The development from understanding the curriculum, through connecting it to one's own experiences and observations, also includes seeking to implement any changes suggested by the students based on the theory in the curriculum. The whole process involves reflection processes, both prior to the work back in the organization, during the work on the change processes and also after in the form of an evaluation process. Students who are employees are active members of the work environment and possess a role [63] that provides them with a varying degree of opportunity and flexibility to influence the organization (**Figure 2**).

The model thus shows the dynamic intertwining of the learning context with the work context [58]. What the model does not depict as another important factor is *the learner's position within the organization*.

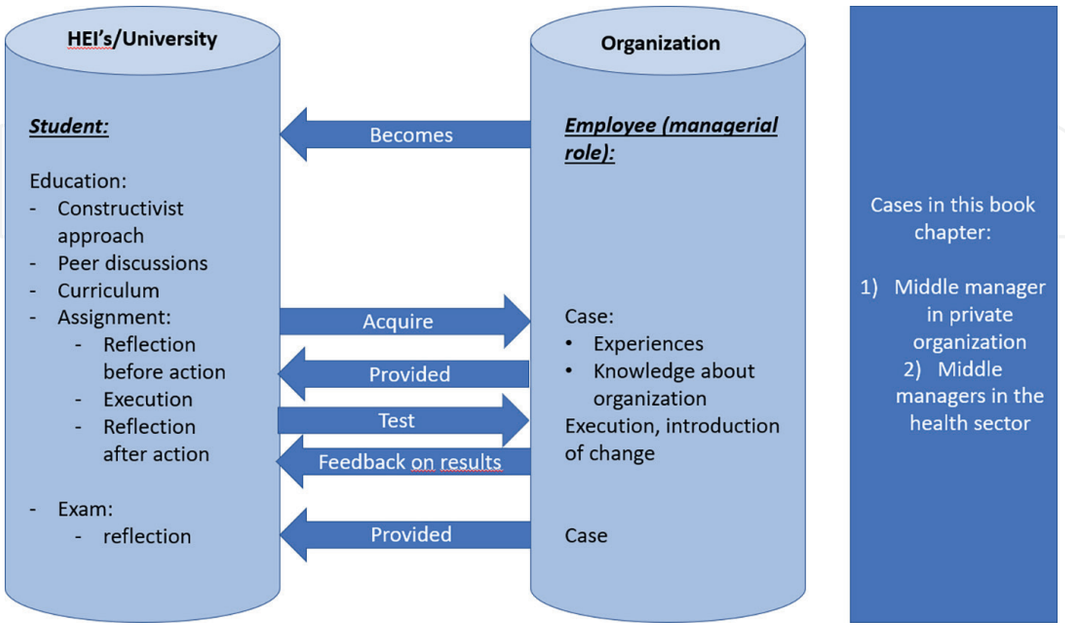

Figure 2.
The interaction and exchange between HEIs and the organizations: Utilizing the students'/employees' own work situation as a basis for education and (possible) organizational change.

7. Discussion

The argument so far, and the model above, underscores the following key findings and conceptual developments of this paper: The concept of "educational relevance" is "relational" in the sense that there must be some basic underlying factors in the work environment that provide "meaning" and "action content" to the acquired skills. We may go even further and claim that the acquired skills are able to play their role when there is a harmony among individual inclinations and talents, newly acquired educational soft skills and work tasks, as well as work organization and expectations in the receiving organization. This implies that there needs to be facilitation within the work context that secures the further development of soft skills. According to Raelin [30], there is generally less focus on the reflection and learning from reflection in the everyday work life within organizations, as their primary focus is on the production of services or products. The reflection processes are an important feature of developing analytical thinking, and at the HEIs this is an integral part of the education, while in an organization there needs to be a culture and focus on reflective processes in order for this development to be achieved [69]. Reflections should ideally be carried out with peers, preferably within the same organization [19], as this team learning [67] may contribute to a more sustainable implementation of the learning outcome within the organization.

Hence, there should be a *dynamic co-evolving relationship* between the work environment and the fine tuning of educational content and educational practices. We argue that this dynamic co-evolution will increase the probability of meaningful applications of various items and modules of educational content at work. For example, universities could offer more targeted university degrees designed for—and sponsored by different organizations, in which the educational content is determined by what the organizations need regarding knowledge development and research development [20]. This does not contrast the fact that universities are learning arenas that provide relevant and sustainable learning outcomes without a direct coupling to work [70]. Indeed, through entrepreneurship education, universities may also facilitate for new organizations to form based on what has been cultivated through education [20].

These points above accentuate the need to systematically develop arenas, in which in-depth discussions about the actual competence needs, strategical challenges and future possible technological and market trajectories in the business and public sectors should and could shape the content and form of the supply of (adult) higher education soft skills to the broader labour market. The managerial position in organizations is that they are expecting learning to be converted into action. In vocational education and training, there is a clear expectation of an implementation of the learning in a work setting [71]. Likewise, when the particular study programme is developed through the triple, quadruple or quintuple helix system [13, 72, 73], there is an expectation of some return on investment [19], not only from the organization, but also from the individual learner.

Yet, this systematic development cannot be achieved at a general educational level. There must be a systematic and specific feedback from the students and their work environment at the level of the educational programme, even at the level of individual courses within the educational programme as a means to co-develop and shape in common the meaning of the "relevance" as a concept. For the HEIs study programmes that are not yet co-developed with industry, this implies a focus on a more granular level to persuade students utilizing student-active methods of their relevance. Herein lies the importance of understanding the impact of involving students that make them build their knowledge on existing knowledge [22], preferably in a social setting

[32, 33]. Being able to discuss and reflect with peers, in order to understand the connections between their background/own work context and the curriculum, aid in the establishment of the personal relevance [60, 74–76].

8. Conclusion

The skills needed for innovation and entrepreneurial behaviours can be developed at both adult higher education and at the workplace. However, the higher education has an advantage in that it has the ability to support the students with the necessary innovation soft skills, such as a "willingness to learn" and "analytical thinking", in addition to contributing to the organizations' ability to utilize new knowledge and skills.

We have identified factors in the organization that are possible to induce by adapting and organizing the learning activities in higher education in such a way that the organizations are gradually involved and attentive to take an interest in their employees' career and competence development. As a result, bridging the gap between the learning context and the work context is an important systemic policy issue. Team learning seems to be important in both the HEIs learning context and a work context. By having more than one employee from the same organization studying the same courses may facilitate for enhanced learning not only for students, but also for organizational learning.

Nevertheless, if the student/employee is able to utilize his/her colleagues as a learning team (without them being students), it is still possible to facilitate for a collaborative learning process.

The main respondents in this study have been middle managers, which by position may enable them to execute any changes recognized, and implement solutions. However, this may also be dependent on their personal traits, organizational issues and internal resistance within the organization, among other issues.

9. Future research

As there are ever-increasing demands of change due to, for example, digitalization, emerging and disruptive technologies and environmental challenges, we recommend a continued research into how universities can collaborate and cooperate to provide a relevant education for the future work life. The ever-evolving market for lifelong learning may therefore provide a basis for doing research into discovering more factors that enable the universities to stay relevant in the future.

The particular issues of organizational resistance to change, and factors hindering the facilitation and execution of change processes as a part of the educational programme, should also be further investigated. What are the mechanisms that need to be "unlocked" in order to facilitate for a recognized and desired (?) change process during the course of the education? This may further support, and put a focus on the collaborative process of lifelong learning, between HEIs and organizations.

Acknowledgements

I would like to express my gratitude to Professor Aris Kaloudis, NTNU for his valuable input and discussions, and to Assoc. Prof. Hanne M. Haave, HINN, for cooperation and great discussions.

The Future of Education: Strengthening the Relevance of Lifelong Learning
DOI: http://dx.doi.org/10.5772/intechopen.110328

Author details

Tone Vold[1,2]

1 The Norwegian University of Science and Technology, Gjøvik, Norway

2 The Inland University of Applied Sciences, Rena, Norway

*Address all correspondence to: tone.vold@inn.no

References

[1] Vossensteyn H, Kolster R, Kaiser F, File J, Huisman J, Seeber M, et al. Promoting the Relevance of Higher Education. Luxemburg: European Communication; 2018

[2] Ministry of Education. Meld. St. 16 (2020-2021) White Paper [Internet]. 2021. Available from: https://www.regjeringen.no/no/dokumenter/meld.-st.-16-20202021/id2838171/

[3] Lambert C, Erickson L, Alhramelah A, Rhoton D, Lindbeck R, Sammons D. Technology and adult students in higher education: A review of the literature. Issues Trends Education Technology. Tucson: University of Arizona Libraries. 2014;**2**(1)

[4] Dalen M. Intervju som forskningsmetode [Interview as a Research Method]. Oslo: Oslo University; 2011

[5] Jacobsen DI. How to Conduct Research: Introducation to Social Science Research Methods (Translated from Norwegian: Hvordan gjennomføre undersøkelser? : innføring i samfunnsvitenskapelig metode). 3rd ed. Oslo: Cappelen Damm akademisk; 2015

[6] Saunders M, Lewis P, Thornhill A. Research Methods for Business Students. 7th ed. Harlow: Pearson; 2016

[7] Arbnor I, Bjerke B. Methodology for Creating Business Knowledge. London: Sage; 2008

[8] Bengtsson M. How to plan and perform a qualitative study using content analysis. NursingPlus Open. 2016;**2**:8-14

[9] Etzkowitz H, Webster A, Gebhardt C, Terra BRC. The future of the university and the university of the future: Evolution of ivory tower to entrepreneurial paradigm. Research Policy. Amsterdam: North-Holland. 2000;**29**(2):313-330

[10] Etzkowitz H, Leydesdorff L. The dynamics of innovation: From National Systems and "Mode 2" to a triple Helix of university–industry–government relations. Research Policy. 2000;**29**(2):109-123

[11] Carayannis EG, Campbell DFJ. "Mode 3'and'Quadruple Helix": Toward a 21st century fractal innovation ecosystem. International Journal of Technology Management. 2009;**46**(3-4):201-234

[12] Heggernes TA. Digital Business Understanding: From Big Data to Small Bits (Translated from Norwegian: Digital forretningsforståelse: fra store data til små biter). 2nd ed. Bergen: Fagbokforlaget; 2020

[13] Carayannis EG, Kaloudis A. A time for action and a time to lead: Democratic capitalism and a new "New Deal" for the US and the world in the twenty-first century. Journal of the Knowledge Economy. 2010;**1**(1):4-17

[14] Carayannis EG, Rakhmatullin R. The quadruple/quintuple innovation helixes and smart specialisation strategies for sustainable and inclusive growth in Europe and beyond. Journal of the Knowledge Economy. 2014;**5**(2):212-239

[15] Schwab K. The Fourth Industrial Revolution. Currency; 2017

[16] Findik-Coşkunçay D, Alkiş N, Özkan-Yildirim S. A structural model for students' adoption of learning management systems: An empirical

investigation in the higher education context. Educational Technology & Society. 2018;**21**(2):13-27

[17] Oke A, Fernandes FAP. Innovations in teaching and learning: Exploring the perceptions of the education sector on the 4th industrial revolution (4IR). Journal of Open Innovation Technology Mark Complex. 2020;**6**(2):31

[18] Donally J. Learning Transported : Augmented, Virtual and Mixed Reality for all Classrooms. Portland, Oregon: International Society for Technology in Education; 2018

[19] Vold AT, Haave HM. Relevance of Adult Higher Education on Knowledge Management in the Healthcare Sector. Kidmore End: Academic Conferences and Publishing International Limited; 2020

[20] Kaloudis A, Aspelund A, Koch PM, Lauvås TA, Mathisen MT, Strand Ø, et al. How Universities Contribute to Innovation: A Literature Review-Based Analysis. Trondheim: NTNU; 2019

[21] Kolb DA. Experiential Learning: Experience as the Source of Learning and Development. Upper Saddle River, N.J.: Pearson Education; 2014

[22] Dewey J. Experience & Education. New York: Kappa Delta Pi/Touchstone; 1938

[23] Schot J, Steinmueller WE. Three frames for innovation policy: R&D, systems of innovation and transformative change. Research Policy. 2018;**47**(9):1554-1567

[24] Forum WE. The Future of Jobs Report 2020. Geneva, Switzerland: World Economic Forum; 2020

[25] Bolli T, Renold U. Comparative advantages of school and workplace environment in skill acquisition. In: Evidence-Based HRM: A Global Forum for Empirical Scholarship. Bingley: Emerald Publishing Limited; 2017

[26] Powell WW, Snellman K. The knowledge economy. Annual Review of Sociology. 2004;**30**:199-220

[27] Mayhew K, Keep E. The assessment: Knowledge, skills, and competitiveness. Oxford Review of Economic Policy. 1999;**15**(1):1-15

[28] Janssen O. Job demands, perceptions of effort-reward fairness and innovative work behaviour. Journal of Occupational and Organizational Psychology. 2000;**73**(3):287-302

[29] West MA, Farr JL. Innovation at work: Psychological perspectives. Social Behaviour. W Sussex: Wiley. 1989:15-30

[30] Raelin JA. 'I Don't Have Time to Think!' (vs. the art of reflective practice). Reflections. 2002;**4**(1):66-79

[31] Raelin JA. A model of work-based learning. Organization Science. 1997;**8**(6):563-578

[32] Wenger E. Communities of Practice: A Brief Introduction. Oregon: University of Oregon Libraries; 2011

[33] Lave J, Wenger E. Situated Learning: Legitimate Peripheral Participation. Cambridge: Cambridge University Press; 1991

[34] Vold T, Ranglund OJS, Haave HM, Kiønig LV, Venemyr GO, Lervik MJ, et al. Flipped gaming: The teachers role when using the students as content providers. In: Graz: Proceedings of the 11th European Conference on Games Based Learning. 2017. pp. 730-735

[35] Vold T, Ranglund OJS. How Can Flipped Classroom Activities Support

Teacher Motivation? Kidmore End: Academic Conferences International Limited; 2019. pp. 603-608

[36] Kiønig L, Tøndel M, Schult I, Holen S, Vold T. Does using real cases when educating health managers enhance relevance and learning outcome? In: ICEL 2018 13th International Conference on e-Learning. Kidmore End: Academic Conferences and Publishing Limited; 2018. p. 179

[37] Ranglund OJ, Venemyr GO, Haave H, Vold T. How to utilize student input in crisis management education. In: ECKM 2018 19th European Conference on Knowledge Management. Kidmore End: Academic Conferences and Publishing Limited; 2018. p. 741

[38] Vold T, Kiønig LV, Venemyr GO, Wenstad M, Granlien P, Klevhus A, et al. Training for Crisis Using Games: Testing of Game Based Technology "In The Making". Kidmore End: Academic Conferences and Publishing International; 2016

[39] Dewey J. Democracy and Education: An Introduction to the Philosophy of Education (1916). Gorham: Myers Education Press; 2018

[40] Revans RW. ABC of Action Learning. Aldershot: Gower Publishing Ltd; 2011

[41] Kesner RM. Business school undergraduate information management competencies: A study of employer expectations and associated curricular recommendations. Communications of the Association for Information Systems. 2008;**23**(1):35

[42] Kavanagh MH, Drennan L. What skills and attributes does an accounting graduate need? Evidence from student perceptions and employer expectations. Accounting and Finance. 2008;**48**(2):279-300

[43] Tempone I, Kavanagh M, Segal N, Hancock P, Howieson B, Kent J. Desirable generic attributes for accounting graduates into the twenty-first century: The views of employers. Account Research Journal. Bingley: Emerald Group Publishing Limited. 2012:41-55

[44] Olson K. Wounded by School: Recapturing the Joy in Learning and Standing up to Old School Culture. New York: Teachers College Press; 2009

[45] OECD. Innovating Education and Educating for Innovation: The Power of Digital Technologies and Skills. Paris: OECD Publishing; 2016

[46] Deci EL, Ryan RM. Intrinsic motivation. Corsini Encyclopedia Psychology. 2010;**2010**:1-2

[47] Bandura A. Social Foundations of Thought and Action. Englewood Cliffs, NJ; 1986. pp. 23-28

[48] Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. The American Psychologist. 2000;**55**(1):68

[49] Karatas H, Alci B, Yurtseven N, Yuksel HG. Prediction of ELT students' academic (language) achievement: Language learning orientation and autonomous learning. Istanbul: International Online Journal of Education Science. 2015;7(1)

[50] Deci EL, Ryan RM. The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. Psychological Inquiry. 2000;**11**(4):227-268

[51] Cottrell S. Critical Thinking Skills: Effective Analysis, Argument and Reflection. London: Palgrave; 2017

[52] Wolfe CJ, Christensen BE, Vandervelde SD. Intuition versus

analytical thinking and impairment testing. Contemporary Accounting Research. 2020;**37**(3):1598-1621

[53] Larsen K, Gärdebo J. Retooling Engineering for Social Justice: The use of explicit models for analytical thinking, critical reflection, and peer-review in Swedish engineering education. International Journal of Engineering Society Justice. 2017;**2017**:13-29

[54] Schön DA. Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions. San Francisco: Jossey-Bass; 1987

[55] Schön DA. The Reflective Practitioner: How Professionals Think in Action. Aldershot: Avebury; 1991

[56] Argyris C, Schön D. In: Schön DA, editor. Organizational Learning II : Theory, Method, and Practice. Reading, MA: Addison-Wesley; 1996 (Addison-Wesley series on organizational development)

[57] Filstad C. In: Blåka G, editor. Learning in Organizations. Oslo: Cappelen; 2007

[58] Ballo Ø, Dahl K. In: Ballo Ø, Dahl K, editors. The Bridge between Management and Learning (Ttanslated from Norwegian: Broen mellom ledelse og læring). Bergen: Fagbokforlaget; 2018

[59] Vold T, Haave H, Kaloudis A. On work relevance of adult education: A case study narrative. Electronic Journal of Knowledge Management. 2020;**18**(2):105-120

[60] Priniski SJ, Hecht CA, Harackiewicz JM. Making learning personally meaningful: A new framework for relevance research. The Journal of Experimental Education. 2018;**86**(1):11-29

[61] Nonaka I. A dynamic theory of organizational knowledge creation. Organization Science. 1994;**5**(1):14-37

[62] Feldman DC, Bolino MC. Skill utilization of overseas interns: Antecedents and consequences. Journal of International Management. 2000;**6**(1):29-47

[63] Feldman DC. The multiple socialization of organization members. The Academy of Management Review. 1981;**6**(2):309-318

[64] Lai L. Employees' perceptions of the opportunities to utilize their competences: Exploring the role of perceived competence mobilization. International Journal of Training and Development. 2011;**15**(2):140-157

[65] Bandura A, Freeman WH, Lightsey R. Self-Efficacy: The Exercise of Control. New York: Freeman; 1997

[66] Ryan RM, Deci EL. Self Determination Theory: Basic Psychological Needs in Motivation, Development and Wellness. New York: Guilford Press; 2017

[67] Kleiner A, Smith B, Roberts C, Senge PM, Ross R. The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organization. Boston: Nicholas Brealey Publishing; 1994

[68] de Geus AP. The living company: A recipe for success in the new economy. The Washington Quarterly. 1998;**21**(1):197-205

[69] Filstad C. Organizational Learning: From Knowledge to Competency (translated from Norwegian: Organisasjonslæring: fra kunnskap til kompetanse). 2nd ed. Bergen: Fagbokforlaget; 2016

[70] Haave HM, Hole ÅS, Vold T. Educating Managers in Knowledge Intensive Organizations. Kidmore End: Academic Conferences and Publishing International; 2016. pp. 342-349

[71] Eikeland EO. The ReCarol-2 project: Relevant curriculum in vocational education and training (VET) through action research (AR) and organizational learning (OL. The ReCarol-2 project: Relevant curriculum in vocational education and training (VET) [Internet]. Academia.Edu; 2011. Available from: https://www.academia.edu/47897293/The_ReCarol_2_Project_Relevant_Curriculum_in_Vocational_Education_and_Training_VET_through_Action_Research_AR_and_Organizational_Learning_OL

[72] Carayannis EG, Campbell DFJ. Mode 3 knowledge production in quadruple helix innovation systems. In: Mode 3 Knowledge Production in Quadruple Helix Innovation Systems. New York: Springer-Verlag; 2012. pp. 1-63

[73] Carayannis EG. In: Campbell DFJ, editor. Mode 3 Knowledge Production in Quadruple Helix Innovation Systems : 21st-Century Democracy, Innovation, and Entrepreneurship for Development. 1st ed. New York, NY: Springer; 2012

[74] Harackiewicz JM, Priniski SJ. Improving student outcomes in higher education: The science of targeted intervention. Annual Review of Psychology. 2018;**69**:409-435

[75] Renninger K, Hidi SE. Interest development and learning. In: The Cambridge Handbook of Motivation and Learning. New York: Cambridge University Press; 2019. pp. 265-290

[76] Hidi S, Renninger KA. The four-phase model of interest development. Educational Psychologist. 2006;**41**(2):111-127