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Higher Education Teachers' Conceptions of Professional Development and Change: A Longitudinal Case Study of University Pedagogy Prospects

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Abstract: The aim of this research is to find out how higher education (HE) teachers reflect on the possibilities of personal development and evaluate the institutional promotion of academic teaching in an HE community. The purpose was thus to understand how university employed teachers experienced and reflected on the benefits of their pedagogical education and pedagogical fellowship during and after the studies. To obtain information regarding the current situations and prospects for the future of the research persons, questionnaires were used, and unstructured essays were written through their study time and subsequently. The research methods were qualitative content analysis and deep analysing methods. The teachers possess cognitive thinking skills of the highest level. Pedagogical and transformative thinking are not at the same level. The research persons express their views tactfully when outlining how teaching should be realized in the future. Still, they criticized the resistance to changes in academic teaching, especially before they themselves were part of the administration.

Keywords: *Critical experience, collective individualism, holarchy, professional identity, self-assessment.*

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Introduction

If you are to design new measures, looking back is useful. Past experiences will guide your thinking to discover new paths. Finding them together with a team or with inspiring fellow travelers will make the process more enjoyable, perhaps more inventive.

A piloting teacher training program of 60 credits giving general pedagogical competence was planned jointly and realized in 2007-2009 by the teachers at the University of Oulu and Oulu University of Applied Sciences. Its aim was to develop experimental data of how the contents and practices of the program promote learning. In addition, the purpose was to develop the cooperation of different HE implementers and the transmission of good practices. (Karjalainen & Nissilä, 2008b, 2011; cf. Zajonc, 2002) Simultaneously with the implementation of the program, the process was studied from various viewpoints of development.

When designing and implementing higher education teacher training, at least three important and interrelated perspectives emerge, which should be closely considered. These perspectives include organizational culture, teacher competence, and teacher identity which are critical in later reflection.

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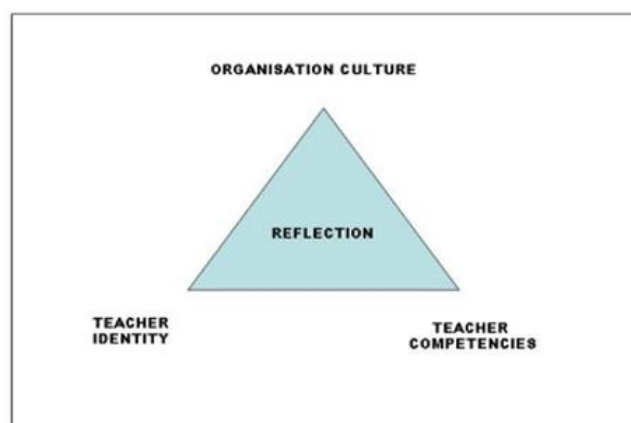


Figure 1. *The Perspectives of Pedagogical Education of HE* (Karjalainen & Nissilä, 2008b)

Literature Review

Content qualification and pedagogical practice will hopefully help an individual teacher to focus on students. According to student experiences, teacher training can improve pedagogical measures, for instance, lecture organization, teamwork, and relations. It usually changes teaching, makes the students learn better, and has an impact on teacher identity. It will also change the organization. Social cognition theories assume that sustainable change will take place through the learning of individuals and the reflective sense-making interactions of institutional actors (Kezar & Lester, 2009).

Reflection: The individual and unique character of teacher knowledge can be emphasised by using the term 'personal, practical knowledge' which manifests itself also without relation to a formal theory. The personal, practical or tacit knowledge is studied through 'narratives' or 'teacher stories' (Connelly & Clandinin, 1990; Elbaz, 1981; Kratka, 2014; Martin et al., 2018). The term 'tacit knowledge' indicates teacher knowledge which is implicit and hard to articulate (Brown & McIntyre, 1993; Schön, 1983). Schön (1983, 1987) began to use the terms 'reflection-in-action' and 'reflection-on-action'. The former refers to professional knowledge which becomes visible in their actions, and the latter when they reflect on their actions to broaden their knowledge. In these definitions, Schön (1987) distinguished between knowledge and reflective thinking. Knowledge is a state while reflection is a process for acquiring, adjusting, and expanding knowledge.

Collective reflection views teaching as an organization of work. Personal mastery, mental models, team learning, shared visions and systems thinking offer different viewing angles to collective reflection (Senge, 2006). Without personal commitment, development is impossible. Growing means ultimately allowing also other people to grow. Ways of thinking and seeing things direct our daily behaviour (Nissilä, 2005). In team learning, the discussion is the companion of dialogue (Nissilä, 2010).

When evaluating teaching, the most essential criterion is to value the mental processes. Since commitment cannot be imposed, it is critical that all team members are committed to the same goals and share a common organizational vision, which is a quality often reached or enhanced through discourse. Collective reflection and regarding other people as esteemed colleagues foster a wholesome atmosphere, give time and space to other people and will lead to a deeper understanding (Nissilä, 2005). In systemic thinking, the background is formed by systems and theories which bind the other core factors together. (Senge, 2006) Reflection, like self-evaluation, needs thinking skills for recognizing experiences, ability of naming them and giving meanings to them.

Critical thinking means reasonable, and reflective thinking focused on deciding what to believe or do (Ennis, 2011; Yanchar & Slife, 2004). It is the characteristic of an ideal academic citizen. Consequently, it is essential as a tool during the inquiry and in the skilled and active interpretation, evaluation of observations and communications, information, and argumentation (Barshay, 2019; Facione, 2004; Fischer & Scriven, 1997). A critical thinker is capable of fostering leadership, effective teamwork, and self-directed learning process (Mezirow, 1990).

Pedagogical thinking is apparent in diverse domains. Cognitive psychologists have investigated human performance acquired during long hours of learning and experiences (Nissilä, 2006). The data revealed differences in the competence levels resulting from the interaction between knowledge organization and information processing (Feltovich et al., 2006; Patel et al., 1986).

Understanding knowledge as a 'commodity' is typical of 'reproductive' conceptions of learning. Constructive conceptions of learning involve applying the received information to existing knowledge so that the knowledge is transformed in some way (Nissilä, 2006). How conscious and rational are teachers in their pedagogical thinking? It sometimes seems that teachers' implicit theories seem to be selective combinations of cause-effect assumptions based on many sources. There is, however, a purpose behind the practice, and the action should be purposive.

Transformative thinking and learning mean that “teachers should not load new information on students” hoping that they will absorb it. Instead, students must “transform” the knowledge and skills into something new. “Transformative learning is most likely to occur when students become personally engaged and perceive the subject matter to be directly relevant to their own lives” (Nissilä, 2006, p. 33). The learning process is individual, content and context specific. It will empower students to take responsibility for their learning, increase intellectual courage, develop relationships, clarify values, and ignite action (Cranton, 1994; Illeris, 2014).

Mezirow’s theory reveals the central position of experience, critical reflection, and rational discourse which are based on psychoanalytic and critical social theories. “For learners to change specific beliefs, attitudes, and emotional reactions (=meaning schemes), means that they must engage in critical reflection of their experiences, which in turn leads to a perspective transformation” (Mezirow, 1991, p. 167). Meaning structures are based on individuals’ cultural and contextual experiences and influence on how they behave and interpret events. “Perspective transformation occurs less frequently than transforming the meaning schemes” and is often the result of a crisis or major change in life (Mezirow, 1995, p. 50.) - A Finnish author writes: “Then I knew what understanding was: everything changes although nothing happens” (Krohn, 1989, p. 12).

Future perspectives. Since we educate teachers and researchers for tomorrow, we must consider what a step ahead will mean. Future-oriented education refers to new ideas, individualism, organizational structures, and cultures. The development of human thinking is parallel to many changes manifested in the external world. We notice a shift from egocentric individualism to collective individualism. These changes will lead to organizational transformations that meet the needs of an uncertain future.

Researchers of the future clarify the discussion by presenting various dimensions of the change, signals, and their interpretations. The meaning of weak signals can be an enigma. For that reason, it can be challenging to understand them or to utilize them. Sometimes these signals are seen as representatives of emerging issues or wild cards, while they may also be seen as the first indication of change. Various dimensions of interpretation show that signals do not always reflect the true state of the emerging issue, which demands the familiarization with primary sources of information. (Hiltunen, 2017; Kuusi et al., 2000) Edgar Morin, a French philosopher put it: “One of the greatest problems we face today is how to adjust our way of thinking to meet the challenge of an increasingly complex, rapidly changing, unpredictable world. We must rethink our way of organizing knowledge” (Morin, 2001, p. 5).

The conception of collective individualism is an emergent idea arising in connection of the new forms of online social networking and, hence, new kinds of social relationships. It is “grounded in the fundamental human principles of caring and commitment, directed not only at the organization and its customers but also with great focus on colleagues” (Wolf, 2010, p. 92). It expresses the gradual shift in consciousness moving from egocentric to communal or even global values. This ethical individualism might, in the 21st century, show the capacity “to integrate the autonomy of individualism, familial relationships, and the new *holarchical* organizational structures that are needed to carry us into the complex, paradoxical and uncertain futures” (Gidley, 2013, p. 6).

The generations of organizational structures are hierarchy, heterarchy, and holarchy (Gidley, 2013; Reicher et al., 2005). Today even wirearchies are discussed referring to understanding how people collaborate and create social value. They are seen as an emergent organizing principle which clarifies the network dynamics of work environments focusing on the “soft skills” of management (Lavoy, 2014).

Hierarchical organizations in their most extreme form refer to a centralized network, and, by the mid-80s, the rigid top-down management. *Heterarchical* organizations are often highly collaborative and pluralistic resembling typically the distributed network. They contain possible risks for organizations with too much collaboration and power decentralization. It can lead to problems caused by insufficiently clear leadership. The result might be inability to make decisions, lack of direction, delay, and, in the worst case, symbolical leadership (Gidley, 2013).

Holarchical organizations are likely to be decentralized, since they deal with a wide range of interdependent issues. Their organization is best done in groups that are already working towards common goals. In collective individualism, employees are both prepared to take responsibility for tasks and in turn empower the leadership in steering the organization. According to Gidley (2013), important requirements in creating collective individualism are 1) leaders’ ability to take responsibility *and* work collaboratively; 2) a team of responsible employees able and willing to work autonomously and respecting healthy visionary leadership; and, finally, 3) a group process including the meta-reflection on the operational development itself (Gidley, 2013).

From the perspective of group process theory, the interactive, nested holarchical organization would neither prioritize hierarchical task-oriented functions (“are we getting the job done?”), nor heterarchical care functions (“and how are the members of the group relating to each other?”). On the contrary, the holarchical model would integrate the task and group care functions (Gidley, 2013).

The physicist, Arthur Zajonc has been working on developing collective intelligence, and even *collective wisdom*. He summarizes the desired future in the following way:

In certain work with groups... very often the real goal is to lead, through a carefully organized and yet open process of dialogue, a group of individuals to a shared preconception. It may even be an insight that was relatively clear to group members at the outset. The point is not the production of an expert viewpoint ... but rather *the collective exploration of a field of inquiry*. It ... knits the group together ... into a single organ that allows that community ... to come to a *joint perception*, ... which can be a profoundly *transformative moment* for the group. (Zajonc, 2002, p. 23)

To sum up, an organization that is coming to terms with the requirements of the 21st century and strives to be a step ahead of them, must at least be aware and try to absorb the new impacts emerging in the global psycho-socio-cultural life (von Bertalanffy, 1976).

Methodology

Research Design

Since the aim of this study was to learn how teachers saw pedagogical changes during their study years and later, and whether a longitudinal follow-up study could explain something of the effectiveness of the HE programs, it was considered important also to learn about the teachers' educational thinking and their views of promoting HE pedagogy. For those reasons, the research questions were directed to a group of university teachers who carried out their pedagogical studies in one teacher education organization.

Context, Sample and Data Collection

The context was a development project in Oulu University of Applied Sciences, Professional teacher education, Finland, in 2007-2010, 2019. The project was designed in collaboration with the University of Oulu. The first group of 40 students commenced in 2007 and the next in 2008, with the maximum study time of three years.

The research persons were 29 multi-subject HE teachers with academic degrees and university employments. Each submitted written essays on given titles at the beginning and in the final stages of their studies. By 2019 they had completed their training, and worked in university posts, mainly in teaching and/ or researching. The latest data was collected 8-10 years after their studies.

The material consisted of the research persons' reflective reports, i.e., study time essays, answers to questionnaires (2009, 2010), and recorded and transcribed follow-up group discussions, led by the researchers, in 2019. The themes concerned professional identities, successes and failures in teaching, current jobs, evaluation of the teacher education that they had received and their feelings of competence at work, hopes for the future, the changes needed, and possible obstacles.

Analysing of Data

The research methods were qualitative, thematic case studies, and a deep analysis according to objective hermeneutics. The qualitative paradigm (e.g., Denzin & Lincoln, 2000) is generally used in examining teachers' thinking and interpretation processes in their reflective writings. Here the thematic analysis was specially directed to revealing their thinking of teacher education and promotion of HE pedagogy.

The deep analyses follow the principles of objective hermeneutics. It offers a model of clear and comprehensive classification through which to define meaningful action. It is based on the sociological writings of Oevermann et al. (1979, 1983) and further developed by Siljander and Karjalainen (Karjalainen & Siljander, 1993; Siljander & Karjalainen, 1991). The basic idea is to examine especially the latent meanings of the case. Its focus is set on reconstructing interaction processes and social structures with their underlying logics, values, and norm systems. "Social grammar" addresses issues that are relevant for understanding the contemporary development and policy in HE. (Karjalainen & Nissilä, 2011)

According to Oevermann et al. (1983) and Karjalainen and Nissilä (2011), objective hermeneutics strives (1) to understand human action and interaction better and find out about the social programming of the human mind, (2) to find generative rules that enable using language and consensus successfully in social situations; and (3) to define the automated social competencies which are unconsciously mastered. Recently, Oeverman's research results have increased discourse over qualitative research (Hitzler, 2005; Leanza, 2008; Maiwald, 2005; Reichertz, 2004; Schnettler, 2002).

Reliability and Validity

Qualitative research should follow the scientific procedures that are inherent to the research design to bring valid, reliable, and trustworthy outcomes. Validity means that the research concentrates on just what is the purpose. Reliability examines if the collecting of data, its analyzing, interpretations, and conclusions are made truthfully, and credibly.

To maintain validity and trustworthiness some methodological techniques must be adopted. In this research, the topic was consistent with the research literature and supported by it, the participation was conscious and voluntary, and the sampling was random. Collecting the data took place in different ways, and their reliability was supported by

triangulation. (Morrow, 2005) The process of data collection and research lasted the first 2-3 years, and the last sampling, comparative data were received after 7-10 years after the first collection.

The methodological strategies to ensure the 'trustworthiness' or reliability of the findings included: 1) meticulous record keeping, demonstrating a clear decision trail, and ensuring the consistency and transparency of interpretations, 2) observing similarities and differences across accounts to ensure the representation of different perspectives, 3) including participants' verbal quotations as a basis of findings, 4) demonstrating thought processes during data analysis and subsequent interpretations, 5) engaging two researchers in the process, 6) asking research persons to comment on the transcript and decide if the concepts created were proper, and 7) using triangulation of different methods and perspectives. (Eisenhardt, 1989)

Research Questions

1. What are the university teachers' conceptions of their professional identity and pedagogical development during their educational studies and after them?
2. What are their study time conceptions of their personal possibilities to influence on the pedagogical change in the university system?
3. How do they see the pedagogical and other changes in the university, and years after their study time?

Findings

Individual Development

Towards the final stage of studies, recalling the personal development processes is described here as a model of levels. The first of them, (1) *descriptive level* of action forms the basis with pre-, in- and post-active phases. This is where the subjective, practical theory becomes visible. It is supported by objects or normative theories, here called (2), *pragmatic level* theories, which comprise the individual teacher's adopted didactical norms. Higher than norms there is level 3 of *theory and practice* which suggests the support and awareness of theories in pedagogical thinking. Level 4, *meta-theories* is a demanding level presupposing an organized overall conception of teaching and of ontological, epistemological, and philosophical aspects. The given four levels are observed from three points of view: (I) knowledge ("knowing"), (II) action and change ("doing") and (III) awareness and development ("understanding"). (cf. Nissilä, 2006, p. 89: Levels of reflection)

Table 1. Personal, Pedagogical Reflection

TOTAL	I KNOWLEDGE Pre-action "knowing"	II ACTION & CHANGE In-action "doing"	III AWARENESS & DEVELOPMENT Reflection on action "understanding"
100%	62%	21%	17%
1. DESCRIPTIVE LEVEL	Has knowledge of university organization, the general data of students and the contents of one's own teaching. In general, the person is rather an observer and bystander. "This was one of my best learning experiences" "Still, I often stay as a bystander and observer."	Feels stress amidst the observed need of change. Finds some grassroot things what to do for improvement. Resorts to passive thinking, hoping that some other would take the responsibility for other changes "I would be willing to change, but the others are kind of avoiders." "...teaching is not reading aloud the study material in front of the audience – it is making people involved in the theme via a teacher's personal way"	Feels the duty of removing obvious obstacles of work but feels powerless. Has personal attitude to development. "I have even produced higher learning among students" "I have clearly developed to be a teacher."

Table 1. Continued

30%	18%	7%	5%
2. PRAGMATIC LEVEL	Knows the university culture with its "from top to bottom" - leadership, which is a personal threat to subordinate reformers. Likes the method of feeding the ball to somebody else or sharing the responsibility. Will easily become an avoider or uninspired performer <i>"...teaching is not asking questions only because teachers usually do so - it is making people understand (not only know) the basic facts and become able to solve problems themselves"</i>	Sees challenges, makes invisible obstacles of learning and teaching. Person and task dominate in teaching <i>"...better understanding of situations and better planning led to ... unclenching the myth of teaching which should not be seen as straightforward but as the result of growth"</i>	Feels opposed, lonely, timid Need of real changes negotiated together, need of sharing and caring colleagues, and need of the support from administration and pedagogical community with mentors. Is a collaborator, tutor/ mentor. <i>"I was inspired and supported by the model given by teacher educators"</i> <i>"The most apparent feeling stays: the reliance on my own ability, the feeling that I can manage teaching without difficulties. At the same time the respect to a teacher's work increased."</i>
35%	23%	7%	5%
3.LEVEL OF THEORY AND PRACTICE	Knows a lot about theories of pedagogy, administration, laws, and personal fields of expertise and how they are supposed to be applied in practice. Is a researcher - developer. Can sometimes be hiding behind theories. <i>"I could not understand beforehand how important it is to know the students you are going to teach. I had a concrete lesson of it in the Technical faculty."</i>	Makes the theories have a dialogue with each other. Learning to see the deeper level in their cooperation, understanding how to promote them both better, and start doing them in practice. Is personally engaged in development <i>"Reflection and self-assessment supported by theories strengthened my teacher identity."</i>	Shows the courage to employ one's personality in teaching, in development and in mentoring colleagues. Removes obstacles with joint efforts and research activities and analytical reasoning. Is a real developer and community-minded supporter <i>"Developing teaching brought me experiences of success in promoting education far and near"</i>
25%	18%	3%	4%
4.LEVEL OF METATHEORY	Is aware of the contexts of society, politics, and education; feels the responsibilities as an educator towards society and learners. Is a reflecting professional. <i>"I am taking progress in giving space to my students to learn themselves, i.e. I try to get rid of traditional behaviorism. It is interesting to notice that I must confirm myself repeatedly that I am on the right path, to let students find information and solutions themselves."</i>	Considers the deeper levels of continuous learning and self-development, develops networks and partnerships, joins the energies for changes in university culture to serve society and single learners better. Moves from ideas to realization. Responsible professional. <i>"Successful networking and partnerships supported my work as a peer mentor at university"</i> <i>"Since teachers are regarded reflective practitioners and professionals, they should be given enough autonomy over their work."</i>	Analytical awareness of oneself and the others as agents in developing education and educational networks. Proactive reflection for understanding learning and teaching and its future demands. Readiness to promote the shared development ideas. Is a future-oriented, a globally understanding professional. <i>"...finding a balance between generalists and experts. Since nobody can ever master anything completely, learning must be directed to understanding the phenomenon on one hand and knowing deeply a smaller part of it on the other. What the balance is like between general and expert knowledge depends on the situation, The most essential in this is that learning should aim at both understanding the whole and the processes of a chosen part, not remembering the facts by heart."</i>
10%	3%	4%	3%

Note. Pre-action, in-action, and on-action comments during and at the end of pedagogical education are presented. The statements (186, N=29) are cross tabulated. Percentages are given in the table.

Research persons' individual conceptions were most widely expressed at descriptive and pragmatic levels, in knowledge and action columns (I, II). The level of metatheory gained only 17% of the statements. The teachers' understanding of individual achievements of students and themselves compared to desired goals of performance had become more justified than before (cf. Karjalainen & Nissilä, 2008a). Work at university teacher/ researcher posts had changed pedagogical thinking, and the combination of research and teaching had widened the perspectives. Cognitive thinking and the fields of discipline seem still to prevail and control pedagogical understanding and practice.

All HE teachers have higher order thinking skills. The respondents know the theories of learning but express their ideas of teaching in the language of pragmatic actions. Developing pedagogical approach is a process, which will hopefully continue individually. Teachers' power to change education and promote their personal development is more and more conditioned by their professional competences and reflective capabilities. (Lloyd Yero, 2002)

Conceptions of Change

To understand related changes in the needs of universities, a new model is required since the concepts that are foreign to the values of the academy will not engage the employees who should bring about the change (Kezar & Lester, 2009). Consequently, the following features should be considered: "interdependent organization, relative independence of environment, unique culture of academy, institutional status, values-driven, multiple power, and authority structures, loosely coupled system, organized anarchical decision-making, professional and administrative values, shared governance, employee commitment and tenure, goal ambiguity and image and success" (Kezar & Lester, p. 8). HE is characterized by social meanings. Academic rituals, scientific routines and scholarly practices contain meanings that go far beyond situations and actors. (Lueger & Vettori, 2014) "Social grammar" offers keys to understand contemporary developments in HE strategy and policy.

Collective Conceptions

The sample of chosen essays (n=10) was analysed according to the method of objective hermeneutics (Karjalainen & Nissilä, 2011). The interpretations are extremely sensitive to lingual contexts and require accurate language competence. This study was made by two researchers, including deep discussions of the meanings encountered and ensuring consensus on the meanings.

The analysis was aided by the usage of the meaning matrix which was developed for revealing meaning structures in a written text (Appendix 1, Table 1; Karjalainen & Nissilä, 2011). It focuses on the meaning structures, either objective or subjective, either historical or universal, as well as their consciousness or unconsciousness (latent nature). (Karjalainen & Nissilä, 2011) The deep analyses concentrated on the possible organizational and personal development and change in HE. An in-depth example of an interpretative process explaining how a step-by-step process can be reconstrued and show different levels of individual meaning is given in Appendix 2. An overview of meaning structures concerning teachers' social grammar is given in Figure 2.



Figure 2. HE Teachers' Social Grammars. (Karjalainen & Nissilä, 2011)

(1. moral justification; 2. Secret veils in leadership; 3. Generative rule of nullification; 4. Impossibilitation; 5. Change vaccination)

The research (2011) revealed that teachers understood change ideas but had also controversial features in their discourse. It appeared in defensive or passive language forms when talking about the changes in a HE organization. The expressions revealed divided communicative patterns which mean that the possibility of true change and the writer's own input to it tended to become two separate issues. (Appendix 2) In the world of concepts they were able to specify concrete actions for change promotion. The real world offered them mostly constraints. (Karjalainen & Nissilä, 2011)

Individual Views of Organizational Change

While the earlier aim was to identify an overview of change conceptions, the continued aim is to make closer data-based observations about the occurrences of latent meaning structures and illustrate the social grammars above (The definitions of Figure 2 titles are referred to by numbers 1-5).

In re-analyzing the data, it appeared that, since being reluctant to real changes and being conscious of this intention, some teachers turned to superficial changes. They are not willing to expend energy for anything that seems troublesome. (1) Moral justification against over-enthusiastic ideas and totally new practices result in excuses and causes some opponents to boast over their tricks of avoidance:

"If the opponent who often feels threatened does not recognize or admit the root causes of his resistance, he justifies it with some other, rational-looking cause." "Instead of the desired change of curriculum contents, we changed the main titles and some subtitles."

The basic reason of this attitude is obviously unwilling to take the responsibility for something troublesome and time-consuming or even stigmatizing. The uncertainty in the face of unknown things, ideas or experiments may cause fear, especially in universities which nowadays offer plenty of precarious positions. (2) Leaders might experience change talk as an incitement.

"In practice it seems frustrating to discuss at a coffee table on teaching and its important role, when a dear colleague says that teaching and especially teacher education are meaningless hustle, and that only an idiot does something like that and voluntarily".

Thus, the subjective, creative intention is sometimes hindered by the desire to protect one's own privacy against scientific criticism and is transformed into objective, generally accepted change talk. Although the respondents may see the global benefit from development efforts, it leads to undervaluation, to the generative rule of nullification (3). The respondents understand their subordinate role, which causes doubts and thus (4) they see changes as impossible

"The organization of university collaboration is described by a rational action model in which the issues have an official flow chart, and the organization members have their roles and job descriptions governed by rules and practices." "The employee is only part of the machine."

It is also likely that among the respondents there are people who have sometimes tried to implement change and have suffered from it. The skill of university leadership and faculty has a profound impact in fostering an atmosphere that is open to positive change. Unsuccessful efforts reduce teachers' willingness to try and thus give them (5) vaccination against efforts:

"Grassroot proposals are doomed to fail ... A better way would be to sell the idea and development changes to superiors and higher levels of administration."

Consequently, the respondents write that decision making in academic contexts often occurs in secrecy, which again strengthens estranged, distant talk about reforms. It also seems that, based on experiences, HE teachers are vaccinated against changes (5) independent of their sources or contents. The more experienced the HE teachers are, the more thoroughly they are vaccinated.

Discussion

This article introduced a behaviour change model that was practiced over ten years. The model focused on both individuals and communities. An important observation was that mutual responsibility is needed to strengthen the level of commitment of individuals and the organization. Adopting this attitude will lead to a better chance for sustainable change initiatives over a long term.

After pedagogical studies and work as certified teachers, the research persons (N=19) reflected on their individual, professional development, and organizational change in the follow-up interviews. Reflection statements, which were thematically analysed, are here coupled with the research questions (Q1,2,3).

Rethinking of Individual Development (Q1)

The understanding of collective individualism was emergent in many answers. Backed by online social networking, caring and commitment of students and colleagues were on the rise. On the other hand, individual efforts were appreciated. While normative evaluations were often avoided, individual progress was valued. Teachers' individual

development was not viewed simply from egocentric values, but it showed the ability of balancing individual autonomy, family relationships and holarchical structures of organizations.

One of the greatest achievements was a change in the attitudes to learners. The respondents' new way of thinking focused on learning: the different ways of student learning and the ways of supporting/ mentoring them. The same aim was central in the pedagogical fellowship among the colleagues. Rethinking of the past and present clarified the teachers' conceptions of the future and confirmed the necessity of going outside their comfort zones if learning demanded. Also, teacher educators' theoretical competence and their message made most of the respondents convinced and thankful for the support. These experiences strengthened the respondents' professional identities.

Benefits From Theories (Q1,2,3)

Understanding theories, teachers can create various learning methods for different learners at academic level since they understand the contents, learning theories and academic practices and demands. "I understand that people learn in different ways, and I must make students take responsibility for their learning. It is their own capital that they are creating during the studies", a university teacher says who later became a professor of the medical faculty.

Alongside the role of individual beliefs, Bates (2015) claims that academic disciplines have a jointly agreed view of what is valid knowledge within each subject domain. The role of disciplinary knowledge communities is significant: "Deciding what to study when we seek to explain how people learn or deciding how to teach depends upon our disciplinary beliefs and perspectives". (Harasim, 2017) In addition to this view, a Doctor of Technology confessed that in the beginning the learner-centred teaching methods were to be understood before he could benefit from them personally. Only after he had learnt how to reflect on his experiences and solutions in teaching and research, he found the kernel of science and pedagogy acting together.

Online collaborative learning theory is a fresh constructivist theory concerning the utilization of technology (Harasim, 2017). It is expected to increase and improve communication between teacher and learners (Bates, 2015). We are not unanimous of the real need of a digital learning theory, because it may refer to a very deterministic way of thinking. We must remember that learning is fundamentally about people rather than technology. As Harasim (2017) suggests, we need to reflect more carefully on how the theories of technological opportunities can be better availed of today and in our future pedagogical approaches.

Common Reference Frame With Administration (Q3)

Quoting a university teacher, we are told that "the fact is that all who work with educational matters would benefit from this kind of pedagogical studies". It recommends a common reference frame and common language to all actors in the field. It will make it easier to understand each other and decide about shared aims. Effective verbal/ literal communication nurtures the process of socialization by facilitating understanding between various operators in the field of education and in turn also aids the learning processes of the participants.

The common reference frame concerns meetings, presentations, lectures, workshops, and conversations, orally and literally. Words convey meanings and people can create different images based on them. Therefore, effective verbal communication begins by planning what to say, how to say it and asking for feedback on how the message was interpreted. These measures will hopefully develop successful communication.

Transformation from Researcher to Teacher (Q2,3)

The respondents were asked *how a researcher could become a teacher*. Only about a third (n=9) of the respondents in the beginning phase (2008) answered this question, obviously because of ignorance of the matter. After their teacher education and work in 2019, the appreciation towards teacher education (N=19, statements 248) was amazing:

Table 2. How Can a Researcher Become a Teacher?

Conception	Year 2008 % n=9	Year 2019 % N=19
1. Combining research and teaching	36.5 %	
2. Gaining experience of teaching	20.8 %	
3. Reflecting	14.6 %	
4. Creating networks	12.6 %	
5. Teacher education	8.3 %	95.6 %
6. Values re-evaluation	4.7 %	
7. Necessity	2.6 %	

In the 2019 data, many of the obstacles in education stayed, but the viewing angle had changed. What is remarkable is the teachers' conception of the growing importance of teacher education. It has grown along the increased understanding

of students and teachers as individuals, and the shared mission of the university as “the cradle of civilization”. It includes both research and teaching.

Certified teachers admitted that they still recognize the many causes of stress in university organization, but their talk of change was milder towards administrative decision makers. Now they better understood, e.g., the general restrictions and financial constraints. The viewing angle had also changed because of their own participation in administration or other responsible tasks in university. Although their understanding in the whole picture had become more realistic, it does not abolish the need of changes. It concerns the administration, and positions of teachers, and it aims at a change toward holarchical leadership.

Conclusion

Pedagogical theories offer a link between practical teaching and educational research helping thus teachers understand how practice and theoretical knowledge support each other (Schunk, 2020). The ability to apply information to new situations and solve new problems is needed in university pedagogy.

Learning seems to be a process that leads to change resulting from experiences and the theoretical knowledge complementing them (Schunk, 2020)). In turn, they increase the prospective chance for improving performance and future learning (Ambrose et al., 2010; Mayer & Clark, 2002). Pedagogical theories are also important in judging the accuracy and usefulness of beliefs (Lefrançois, 2019). Critical thinking will promote these aims, but it is not enough.

What will this kind of empowerment need to prosper? This research suggests that at the organizational level it requires *self-responsibility* to challenge oneself and the community members to learning and growing. *Interpersonal process skills* build functioning relationships and support better problem solving. *Authentic communication* appears where individual communication is open, honest, transparent, and vulnerable. *Trust* is needed for the individuals to feel safe enough to take change risks without fear of reprimand or being ousted by superiors or colleagues in case of mistakes. *Caring leadership* demonstrates concern for individuals in tangible ways. In cases like these, individuals feel valued and will give their best on behalf of the organization.

The process of adopting new behaviours is not just intellectual or rational. It is more a question of accepting the necessary emotional work appearing intrinsically in big changes or new professions. Striving towards teacher transformation, new attitudes, skills, and understandings must be internalized. Teachers should also become conscious of their emotional responses so that they are able to sort experiences and gain new meanings. It will lead to greater consciousness of themselves as persons, researchers, teachers. This kind of process will lead to natural appearance of a heterarchy organization, avoiding hierarchies in general. How can the next step ahead be taken towards holarchy?

New generations of individuals will meet with many emergent changes of the global mindset. As they begin to implement postformal reasoning—such features as self-reflection, complexity, paradox, openness—they will begin shifting away from self-centered circles of leading and start taking responsibility for things that belong to ethical/ collective individualism (Gidley, 2016). This is how collective individualism and perhaps even collective wisdom will hopefully emerge.

Recommendations

In front of a new task look back first. Past experiences will help you form an overall picture. Then look forward and be proactive. Familiarize yourself with future thinking, futurology, and find inspiration in them, too. When interviewing people or discussing in a team focus your attention on meanings, not only words. In face-to-face communication observe whether the body language and the words used are in harmony.

Since the highest education aims at the highest learning, they require the highest research and teaching. To reach them you should have people on the focus of pedagogical and functional measures. Technical devices and digitalization, for example, may help in attaining the mastery of the contents: the transformation of practices, thinking and exploration.

Remember Einstein's words that “imagination is more important than knowledge. For while knowledge defines all we currently know and understand, imagination points to all we might yet discover and create”.

Limitations

Finding the latent meanings of underlying logics, norm systems of interaction processes, and social structures, “social grammar” requires good mastering of the language used, and a minimum of two researchers.

Authorship contribution statement

Karjalainen: Data acquisition, conceptualization, deep analysis, reviewing. Nissilä: Data acquisition, conceptualization, design, all analyses, writing.

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Appendices

Appendix 1.

Table A1. The meaning matrix (Karjalainen & Siljander, 1993).

HUMAN MEANING STRUCTURES (MS)		CONSCIOUS (CMS)	LATENT/UNCONSCIOUS (LMS)
SUBJECTIVE		1. Individual Intentions/ motives	2. Unconscious motives/drives
O B J E C T I V E	HISTORICAL	3. Social norms and roles	4. Social grammars/ Generative rules
	UNIVERSAL	5. Knowledge and assumptions upon universal MS	6. Universal social invariances/ Generative rules

The terms of the table are defined as follows: Subjective= individual, Objective= shared, cultural, social, Historical= valid in certain culture (time and place in history), Universal= common to all cultures.

Appendix 2.

Table A2. An example of deep interpretation –sequence 1 (Karjalainen & Nissilä, 2011).

Example 1: “perhaps this might be possible in the future, when I am courageous enough to develop my teaching more and more ...”

Interpretation: personal, estranging linguistic expression → “change-fugal” attitude

HUMAN MEANING STRUCTURES (MS)	CONSCIOUS (CMS)	LATENT / UNCONSCIOUS (LMS)
SUBJECTIVE	<ul style="list-style-type: none"> - I have developed my teaching - I want to develop it more when I get more daring - I am not sure, if it is possible 	<ul style="list-style-type: none"> - the person appears to be a scaring and timid person - -what is she/ he afraid of? - that he/ she appears to be incompetent? - that his/ her expertise is not on a firm ground? - that he/ she is not valued enough?
OBJECTIVE/ HISTORICAL	<ul style="list-style-type: none"> - to be able to speak out or in favor of something, you must be a real expert, or your competence must be recognized in the working community 	<ul style="list-style-type: none"> - manifoldly problematic, - questioning/ estranging - fleeing off - forms of avoidance and rejection