

**LIDERANDO A PESQUISA E O DESENVOLVIMENTO DE INOVAÇÕES NA
EDUCAÇÃO**

**LIDERANDO LA INVESTIGACIÓN Y EL DESARROLLO DE INNOVACIONES
EN LA EDUCACIÓN**

**LEADING RESEARCH AND DEVELOPMENT FOR EDUCATIONAL
INNOVATIONS**

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RESUMO: Neste artigo apresentamos e discutimos atividades de pesquisa e desenvolvimento global da Escola de Formação Profissional do Docente na Häme University of Applied Sciences na Finlândia. Também refletimos sobre os elementos chave no potencial de pesquisa e desenvolvimento de inovações educacionais em relação à formação de professores e parcerias internacionais.

PALAVRAS-CHAVE: Pesquisa. Desenvolvimento. Inovações. Formação de professores. Trabalho em equipe.

RESUMEN: *En este artículo, presentamos y discutimos las actividades de investigación y desarrollo global de la Escuela de Formación Profesional de Profesores de la Häme University of Applied Sciences, de Finlandia. También reflexionamos sobre los elementos clave en el potencial de investigación y desarrollo en innovaciones educativas en lo relativas a la formación de profesores y alianzas internacionales.*

PALABRAS CLAVE: Investigación. Desarrollo. Innovaciones. Educación de profesores. Trabajo en equipo.

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ABSTRACT: In this paper we present and discuss global research and development activity of the School of Professional Teacher Education at Häme University of Applied Sciences in Finland. We also reflect about the key elements in leading research and developing potential in educational innovations concerning teacher education and international partnerships.

KEYWORDS: Research. Development. Innovations. Teacher education. Team work.

21st Century learning and the change in a teacher's role

In today's world, information and knowledge are increasing so rapidly that it poses a fundamental challenge to education providers. What may appear true today could be proven to be false tomorrow, and the careers that students will enter after they graduate may not yet exist. For this reason, students need to be taught how to process, parse and use information, and they need adaptable skills they can apply in all areas of life. Just teaching them ideas and facts, without teaching them how to use them in real-life settings, is no longer enough. The basic idea is that students, who will come of age in the 21st Century, need to be taught different skills than those learned by students in the 20th century. The skills they learn should reflect the specific demands that will be placed upon them in a complex, competitive, knowledge-based, information-age, technology-driven economy and society and ecological responsibility (21st CENTURY SKILLS, 2016; THORNBURG, 2013; WANG, 2012; WELLS; CLAXTON, 2002).

This means a striking change in a teacher's role and competencies and a paradigm shift from a teacher-centered approach to student-driven learning. Teacher training, together with higher education in general, faces the challenge of bridging education and work. Teacher education programmes address this issue by adopting learner-centred and collaborative pedagogical approaches. Such routes include inquiry learning, problem-based learning, and project-based learning, all of which capitalize on authentic professional practice and related phenomena, problems, and situations (BRUSH; SAYE 2014; HUNT 2015; RUHALAHTI; KORHONEN; RASI, 2017).

Teachers' development is intertwined with the practices of their working communities, networks with colleagues, learning environment, policies and leadership, for instance. In reinventing the teacher's role and effective teaching and learning practices in a digital age, we need increasingly evidence-based knowledge and understanding of ongoing change.

The School of Professional Teacher Education educates in 21st Century Skills

Our working context is Häme University of Applied Science (hereafter HAMK UAS). The special assets of universities of applied sciences in Finland are their applied and multidisciplinary research, development and innovation activities which are guided by user orientation and a problem-solving focus. According to Melin et al (2015), universities of applied sciences have an explicit legally based regional role to deliver education which is aligned with the needs of surrounding society and industry; they undertake applied R&D and entrepreneurial activities, and help facilitate regional development.

HAMK UAS provides bachelor and master level education in several professional domains and professional teacher - special needs teacher - and study counsellor education run by the School of Professional Teacher Education (hereafter SPTE). The university has 650 staff members and 7800 students and it operates in seven campuses in Southern Finland. The university has four research units: Bioeconomy, Smart Services, Sheet Metal Centre and Professional Excellence. The School of Professional Teacher Education was established in 1959 and it is the largest of the five professional teacher education units in universities of applied sciences in Finland. The school provides a government authorized pedagogical teacher qualification, which scores 60 ECTS (European Credit Transfer and Accumulation System).

The curriculum of teacher qualification education follows the national framework of the Finnish Ministry of Education. Teacher education in Finland is either *concurrent*, with the pedagogical qualification integrated into the Master's programme, or *consecutive*, with the pedagogical qualification completed after the initial degree. The education offered by SPTE represents the latter and this model serves especially well those who decide on a teaching career later. SPTE contributes also actively to national initial and in-service teacher education reform of Finland as emphasized by vice president of the Teacher Education Forum 2016-2108 (MINISTRY OF EDUCATION AND CULTURE, 2016.)

The teacher education curriculum is competence-based and it is implemented in flexible, blended learning modules and in individualized learning paths suitable for adult learners. The competence objectives are influenced by changes in the labour market, the learning goals of education, and the society that together demonstrate the dynamic nature of a teacher's work.

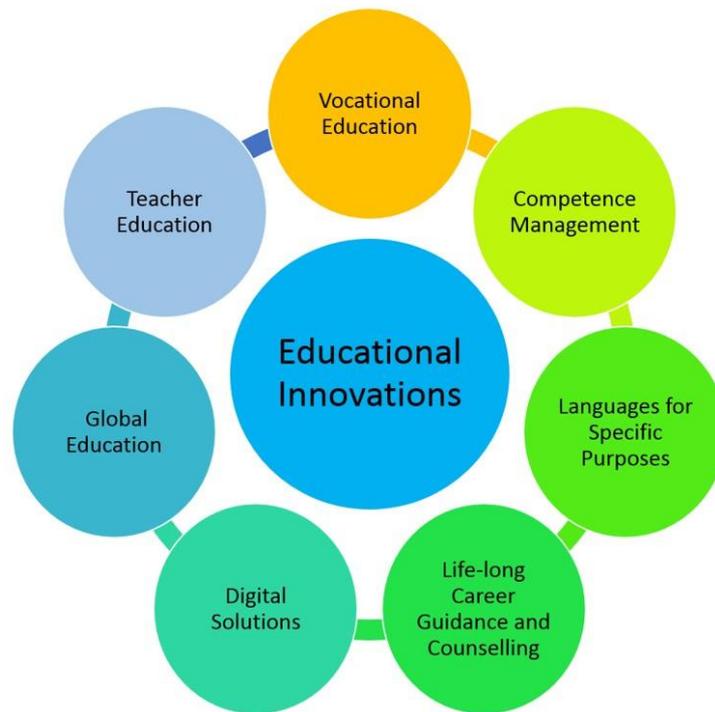
Guidance of learning is at the core of a teacher's work. Teachers must therefore possess theoretical knowledge and practical know-how on learning. Teaching and guidance comprises different contexts and operational environments, including both virtual and international environments, paying attention to students' learning goals, needs, and differences, and requires a broad command of 21st Century skills. These are, for example, critical thinking, problem solving and reasoning, research skills and practices, creativity, curiosity, imagination and innovation, perseverance, self-direction, planning, oral and written communication, public speaking and presenting, leadership, teamwork, collaboration, ICT, media and internet literacy, and data interpretation and analysis (21st CENTURY SKILLS, 2016; THORNBURG, 2013; WANG, 2012; WELLS; CLAXTON, 2002).

Availability of courses or programmes in English is an important determinant of a country's attractiveness to international students. In February 2016, there were 81 bachelor programmes in English at Finnish universities of applied sciences. HAMK UAS has four bachelor degree programmes and two Masters' Degrees in English. SPTE offers teacher qualification education as well in English.

Global Education Research and Development -team designs tailored teacher education

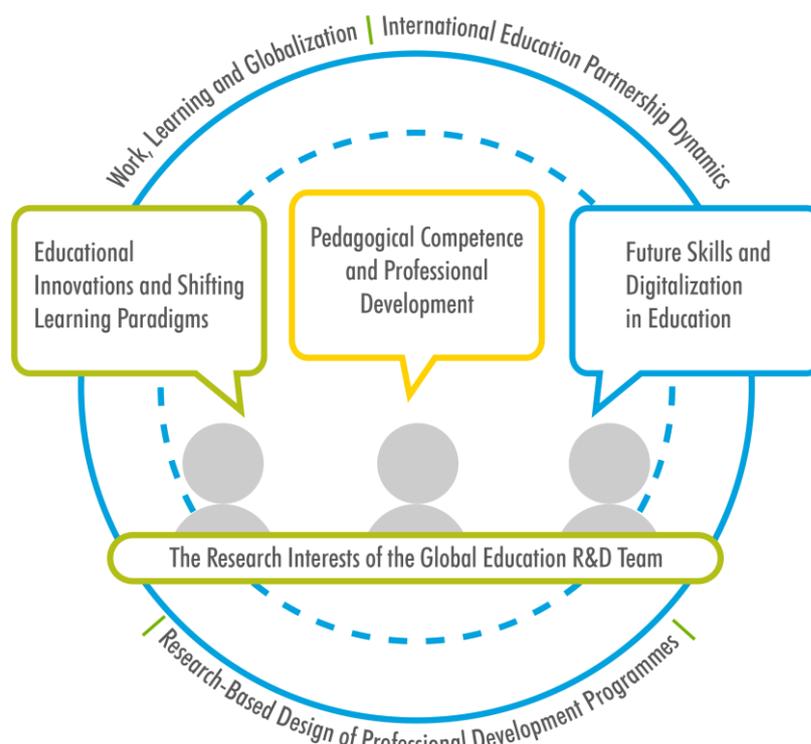
The Unit for Professional Excellence works in SPTE and it includes seven research teams and interest areas: 1) Vocational Education, 2) Knowledge Management, 3) Life-Long Career Guidance and Counselling Research, 4) Digital Solutions in Education, 5) Global Education, 6) Teacher Education, 7) Research Group for Languages for Specific Purposes and 8) Higher Education in Transition (see Figure 1). Furthermore, research unit members work as teacher educators, university lecturers, coaches and project managers. In this paper, we concentrate on the activities of the Global Education Research and Development team (hereafter Global Education R&D -team), which designs, implements and assesses customer-oriented teacher education services for international partners (see more at www.hamk.fi/globaleducationrd).

Figure 1: The RDI Teams of Professional Excellence Research Unit.



Source: the authors

The research interests of Global Education R&D team are 1) Educational Innovations and Shifting Learning Paradigms, 2) Pedagogical Competence and Professional Development and 3) Future Skills and Digitalization in Education. In addition, the interests include three multidisciplinary themes that create context to global co-operation: 1) Work, Learning and Globalization, 2) International Partnership Dynamics and 3) Research-Based Design of Professional Development Programmes (see Figure 2).

Figure 2: The research interests of Global Education R&D team.

Source: the authors

The Global Education R&D team is international, works geographically distributed, and has produced several education innovations in the last three years. With educational innovation, we mean an idea, practice or project that is perceived as new by an individual or another unit of adoption (Rogers, 2003, 12). In this specific context, we mean new educational services, e.g. tailored teacher education programmes that have been created together with partners and customers. These programmes vary in their duration, curriculum and learning objectives from one-week intensive course to several years' collaboration and consultation partnerships.

Instead of a traditional research group, we could call this team as specialist-driven and a self-directed working team (KAUFFELD, 2006). The team focuses on innovation acceleration within the identified capacities and different skills of team members engaged, and works without the traditional managerial supervision; the director works merely as co-creator and facilitator in the team. Currently, the field of Global Education R&D is growing rapidly and going through several transformations. There are a lot of new partnerships, for instance in Brazil and other Latin American countries, China and Kazakhstan, and therefore, several new education programmes are

in an implementation phase. It is therefore necessary to recruit new expertise, to create more automatized digital solutions for customer management, analytics and reporting. There is a recognized need for both exclusive services as well as scaling up the tested services to a wider extent.

The team uses several approaches in its redesigning and quality assessment. In this paper, our interest, however, is in theoretical approaches for understanding the leadership of research and development potential about educational innovations. In the following section, we present a conceptual frame of reference that has been, according to our group-assessment, a rather useful tool for observing, reflecting and leading this kind of agile and constantly evolving, self-directed research and development activity: The Entrepreneurial University Concept (GIBB, 2012).

Integrating key elements in leading research and development potential

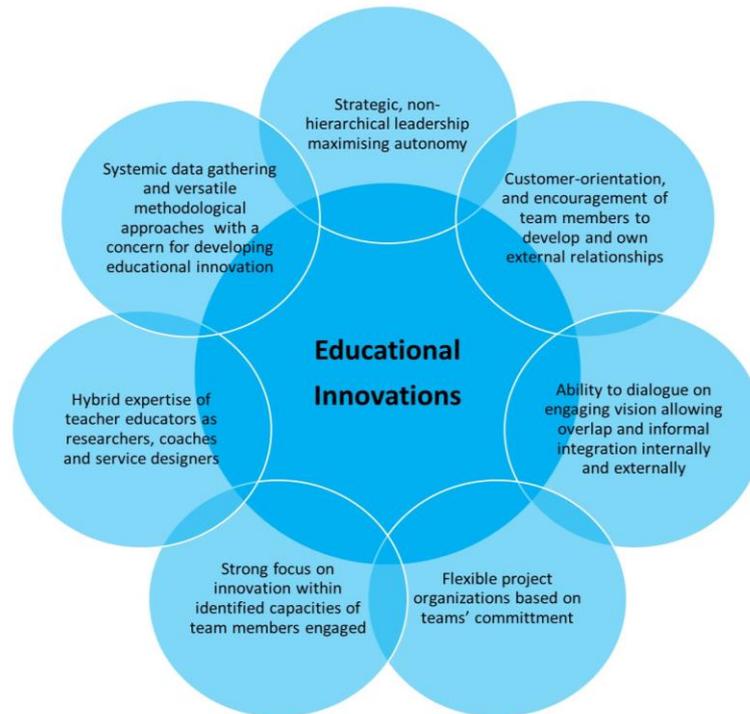
The Entrepreneurial University Concept focuses on the leadership challenge facing staff of universities across the world in moving their institutions to a more entrepreneurial mode (KEAST, 1995; BERNASCONI, 2005; THORP; GOLDSTEIN, 2010; GIBB et al, 2012). The concept is centrally concerned with the means of coping with and creating uncertainty and complexity (CASSON, 1982). Its traditional essence is that of creating and dealing with new and innovative combinations of factors of production and ways of doing things. The Schumpeterian notion of creative destruction (SCHUMPETER, 1934), leading to innovation and renewal, manifests itself in uncertain and complex task environments for those within the system. Dynamic task environments with high levels of change therefore demand and emerge through entrepreneurial initiative.

The concept embraces several challenges and the research tradition of higher education, and puts pressure on universities to respond to social as well as economic local and regional development problems albeit in a global context (GIBB et al, 2012, p. 3). The approach towards students' employment, employability and skills development for labor market is also important.

Below, we present the collaboratively identified key elements of leading research and development team and its potential for educational innovations (see in Figure 3). We have recognized these elements in critically assessing the activities of

Global Education Research and Development team in the purpose of maintaining its work and tackling the challenges in development activities.

Figure 3: Reviewing RD team potential in educational innovations: integrating key elements.



Source: the authors

It is important to have *a systemic data gathering process and implement versatile methodological approaches* with a concern for developing educational innovations. The systemic, economic and effective data gathering process needs to be experimented on and implemented. The purpose of data gathering and use of gathered data is for the creation of education innovation. In addition to routine data and feedback gathering, many out-of-the box approaches are needed to reach the interesting data for future innovation. Many times, the methods for working are innovated “in action”, and it is typical that in a self-directed research team there is a continuous discussion on methods and strategies going on.

Strategic but non-hierarchical leadership seems to maximize a team’s autonomy. The team knows its goals and mission but is free to choose the most effective ways of working.

Customer-orientation is one of the key elements in research and development dynamics in educational innovation creation. This means in practice that team members

are encouraged and allowed to develop their own external relationships in the organization. The team collaborates and associates with several stakeholders and builds relations on trust and understanding. Instead of building customer relationships, we could merely talk about a willingness to create sustainable, long-term partnerships with shared interests and mutual respect. This requires the *ability to dialogue on engaging vision* allowing overlapping and informal integration both internally and externally.

Global Education R&D team members have co-written and published several publications with its international partners, for example on pedagogical change (RYYMIN et al, 2015), digital solutions in education (RYYMIN; KUNNARI; D'ANDREA, 2017), game-based learning (DURAN; SUSIMETSÄ, 2016) and teachers' professional development (MAHLAMÄKI et al, 2015). There are several ongoing research initiatives in the network and constant idea exchange of possible future investigations.

However, this kind of freedom requires both *flexibility and strong commitment* to projects from the team members. These members do not have to know every project; still all must take full responsibility of the very research project they are managing, and share this process openly with others when needed.

In addition, self-oriented team work may sometimes be quite challenging (CHENG et al, 2012). A very creative team has, for example, a tendency to establish too many competing initiatives at the same time in its creative flow. *The team needs a strong focus on innovation building within the identified capacities of team members engaged.* Active focusing, and collective negotiations of shared goals, help the teams prioritizing, choosing and, if needed, completing the inconclusive work. The capacity and competences of team members play a crucial role, and they must be in focus of intentional development and leadership.

Also, Kunnari and Ilomäki (2014), who have researched educational innovation, write that whenever significant changes take place, the locus of innovations in practice can be traced to insights and initiatives by individuals and to the fact that the changes were achieved through collective negotiations and actions (KUNNARI; ILOMÄKI, 2014). Accordingly, Smith (2012) highlights the need to cultivate a feeling of staff ownership towards innovative practices and to recognize innovative practitioners.

Finally, it seems that educational innovations demand *hybrid expertise* (HOWELLS, 1999; HAKKARAINEN et al, 2004) of team members; an ideal team consists of experts of different fields, still capable to communicate and dialogue as

collaborators in complex and rapidly changing processes. Also, an earlier research in innovations (JOHANSSON, 2004; PENTTILÄ et al, 2013; REUVENI; VASHDI, 2015) emphasizes that a fruitful environment for innovation consists of individuals with different backgrounds and expertise working together on similar problems. The success of the innovative-intensive communities is based on know-how and sharing knowledge as well as on the ability to combine different points of view and approaches.

Strategy for future action

In this article, we have reflected on research and development activities of the Global Education R&D team and discussed the leading potential for educational innovations. We have implemented The Entrepreneurial University Concept as a theoretical frame of reference for recognizing key elements in the process.

Enhancing teaching and learning in rapidly changing societies requires global problem-solving and fresh solutions for teacher education. We need more innovations for flexible training pathways to equip teachers with relevant pedagogical skills, digital skills, 21st Century Skills. We need to raise awareness of formal and informal learning and knowledge transfer and to promote a better synchronization of education, organization development and renewing economies and societies.

According to OECD's latest review (OECD, 2017) Finnish researchers need to co-operate much more with their peers abroad, as well as invite foreign researchers to come to work in Finland. We face the same challenges globally and networked expertise (RYYMIN; KUNNARI; JOYCE; LAURIKAINEN, 2015) is needed. This OECD suggestion establishes our future strategy. We are now looking for new global partners to co-operate, research, embrace the future challenges and innovate with us.

Is that you?

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