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Finnish Vocational Teachers' Competences Made Visible by Open Badges

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After the reform of Finland's vocational education and training sector, there arose a need to focus on vocational teachers' new competences. A national project called "Teachers' Open Badges" explored these competences as instruments of recognition. The open badge-driven learning process was designed for Research, Development & Innovation (RDI) competence development in teacher education programs. The results revealed that student teachers found open badges useful for demonstrating competence for job application purposes. They attached earned open badges to their ePortfolios and shared their badges in other digital environments.

Keywords: VET teacher's competence, open badges, RDI project

INTRODUCTION

Finnish teacher education is continually developing. Finnish teachers are seen as future-oriented and broad-based experts who create new pedagogical innovations while utilizing diverse new learning environments. Finnish vocational education and training underwent reform of its vocational upper secondary education; these reforms considered the needs of work life and the reorganization of education with fewer financial resources. After this reform, Finnish vocational teacher education encountered a need to recognize and acknowledge the professional competences of vocational teachers during their teacher studies and throughout their professional careers (Ministry of Education and Culture, 2016; Teachers' Badges Project, 2020).

Definitions of the competences vary greatly. The European Reference Framework of Key Competences for Lifelong Learning (European Union, 2007) defined "competence" as not only the required knowledge but also the skills, attitudes, and ability to apply learning outcomes appropriately based on the context (Cedefop, 2014). According to McClelland (1998), competence involves achievement acquired through training and development. As stated by Mäkinen and Annala (2010), the concept of competence is separated, by paradigmatic difference, from the concept of competency because competency refers to the potential of an individual as a whole. In Finland, there has been a continual trend

towards a competence-based system based on learning outcomes. These courses have been introduced for adults and young people alike (Cedefop, 2020).

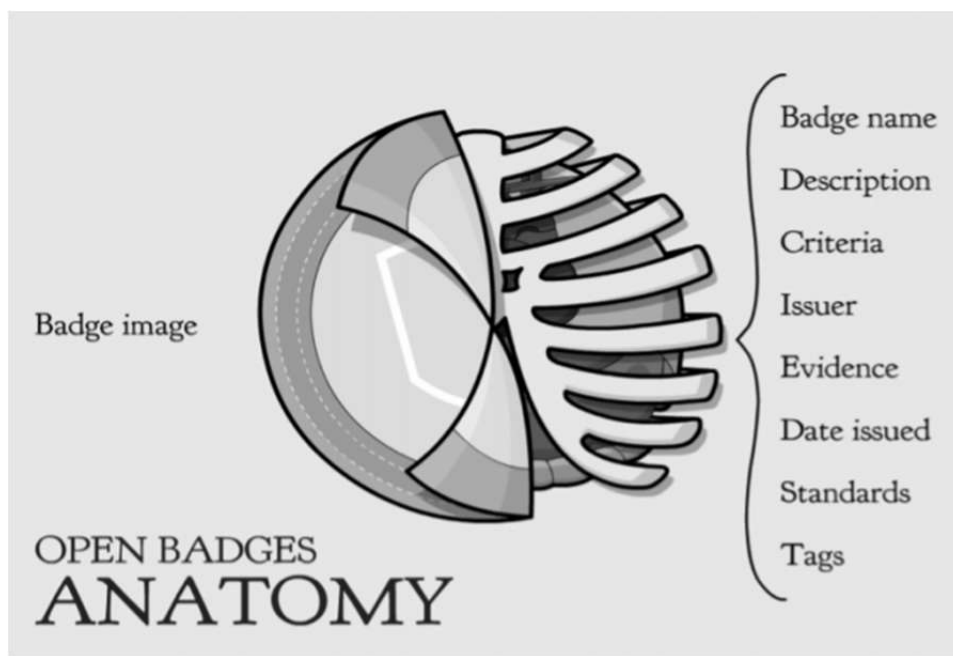
At present, Finland lacks formal or nationally-shared requirements or standards for teachers' competence. Within this context, the current study aims to discover how open badges and open badge-driven learning processes serve vocational student teachers' needs and expectations of their studies. It also considers the process of making their competences visible in research, development, and innovation (RDI) projects during their teacher studies.

This research is based on a module entitled, "Research, development and innovation (RDI)" (6 ECTS credits) in the Finnish Vocational Teacher Education program (1-1.5 years, 60 ECTS credits). Delivered by the HAMK School of Professional Teacher Education, this vocational teacher education curriculum is competence-based, with an implementation plan built on five competence-based modules, each with its own detailed learning outcomes. The competence-based curriculum and the learning outcomes provide student teachers future competences that are required in vocational teachers' work (HAMK, 2018).

OPEN BADGES

Open badges are a relatively new approach in educational practices. Open badges help identify and promote competences in the form of digital microcredentials (Abramovich, Schunn, & Higashi, 2013; Brauer & Ruhalahti, 2014). Open badges represent information storage tools that contain a visual image as an icon, the name of the badge, the issuer, the competence description, the assessment criteria, and evidence of the badge earner's competence (Bowen, 2018). Figure 1 presents the information composing an open badge. The badge criteria explain the competence by learning objectives and assessment criteria, as well as instructions for skills demonstration. Detailed badge criteria help applicants demonstrate their skills and competences; in addition, criteria help applicants conduct a self-assessment of their own performance (Brauer & Siklander, 2017). Open badges are micro credentials, and applicants demonstrate their skills via authentic teacher's work tasks in educational institution.

FIGURE 1
ANATOMY OF OPEN BADGES



(Bowen, 2018)

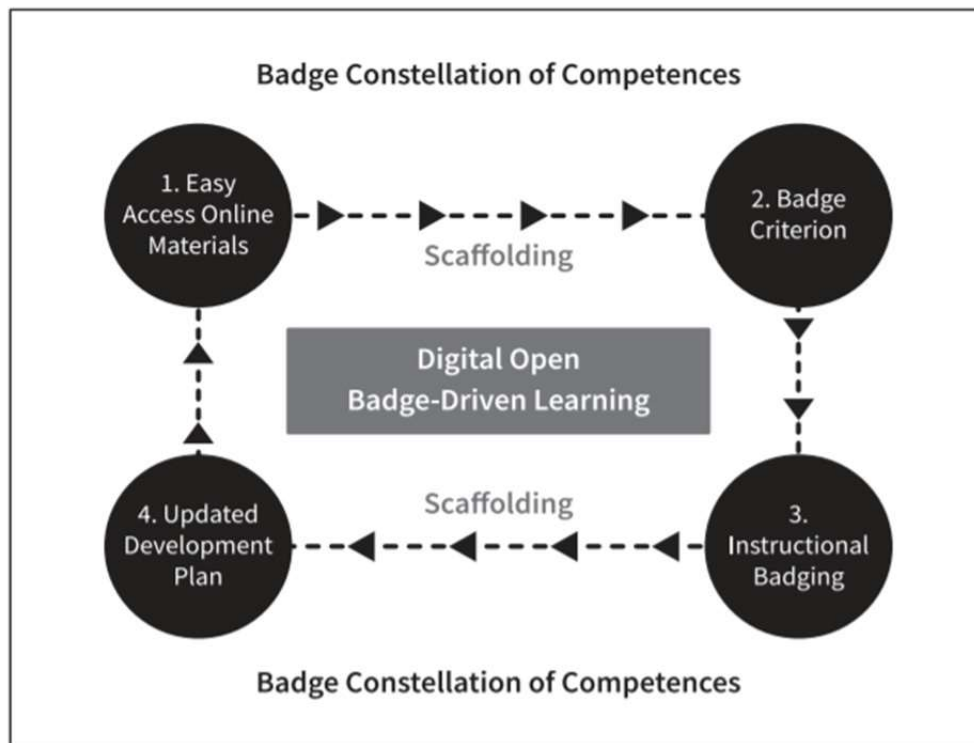
The open badge may include several kinds of evidence in digital format through which applicants demonstrate their competences (Casilli & Hickey, 2016). The issued open badges are competence-related open information sources visible to all viewers (Mozilla Open Badges, 2019). In order to achieve an open badge, a person usually has to send a badge application to the issuer (Casilli & Hickey, 2016). The application includes evidence of the individual's competence in digital formats, including text, photos, figures, videos, mind maps, or any other digital tool or application. The evidence becomes attached to the issued badge, and anyone who explores the issued badges can take a look at the provided evidence.

Brauer (2019) states that, in the future, open badges will be integrated into the learning environments and blockchain architecture of digital learning ecosystems. The importance of using open badges lies in the fact that students feel motivated when using the open badge-driven learning process, in part because of gamification elements (Brauer, Siklander, & Ruhalahti, 2017; Brauer & Siklander, 2017). The versatility in how students can demonstrate their skills using open badges supports their intrinsic motivation (Brauer, Ruhalahti, & Hallikainen, 2018b).

Structure for Open Badge-Driven Learning

It is possible to structure studies through an open badge-driven learning process, particularly through effective scaffolding for students. Brauer (2019) has created a structure for the open badge-driven learning process, which is presented in Figure 2. In the structure, it is possible to design learning activities for students when utilizing open badges for skills demonstration. The open badge-driven learning process requires a design for 1) easy access online materials, 2) badge criterion, 3) instructional badging, and 4) updated development plans.

FIGURE 2
THE STRUCTURE OF OPEN BADGE-DRIVEN LEARNING



(Brauer, 2019)

Easy access online materials take the form of an online course that is self-directed following students' own timetables. Open badge applications are usually linked to online learning materials in order to support students' understanding of learning objectives and assessment criteria.

The open badge constellation is a visual map of all badges that can be earned during one training course or another competence development program (Brauer, 2019). The constellation includes different levels of competences that may motivate students to go further in their learning processes; sometimes it follows a gamification approach (Brauer et al., 2018a).

Scaffolding occurs when the badge issuer reads the applicant's badge application and gives instructions and support in how to continue learning if the badge criteria was not fully met. In addition to the badge issuer's (e.g., teacher) supportive comments, students also appreciate guidance and feedback from their peers; therefore, collaborative learning communities can be helpful complements to learning processes with open badges (Brauer et al., 2018). Scaffolding is provided continually in order to support students in continuing and focusing their learning in order to meet the learning objectives. As Brauer, Korhonen, and Siklander (2019) point out, the open badge-driven learning process fully follows the five-stage scaffolding model (Salmon, 2018). The stages are 1) Access and motivation, 2) Online socialization, 3) Information exchange, 4) Knowledge construction, and 5) Development (Salmon, 2018). In addition, the open badge-driven learning process provides an opportunity to add gamification elements to support and scaffold students' learning (Brauer et al., 2019). Ultimately, learning and making competences visible through open badges is a method for scaffolding student learning. With the help of teachers' scaffolding, students can create personal learning paths composed of open badges included in the open badge constellation.

Collecting and Sharing Open Badges

To conduct activities based on open badges, a badge management system is needed to create badges and badge application forms, to receive badge applications from applicants, to scaffold learning, and to assess applicants (Brauer & Siklander, 2017). There are several badge management systems, including Open Badge Factory and Badgr. Many providers of badge management systems use an open badge infrastructure that enables the transfer of badges between different digital environments (Kullaslahti, Ruhalahti, & Brauer, 2019). Paananen and Rusanen (2019) compared several open badge providers and came to the conclusion that Open Badge Factory is sufficient for badge processes requiring scaffolding and collaboration in creating and issuing badges. They pointed out that, in the future, open badge constellations will be created collaboratively; nationwide, this means that software providers will need to create new tools to meet emergent needs.

An additional requirement is an environment for collecting and sharing badges. The open badge infrastructure allows applicants to collect their achieved badges from various issuers (Devedžić & Jovanović, 2015). Open badge earners can save badges into their personal repository, such as Open Badge Passport or Mozilla Backpack (Brauer & Ruhalahti, 2014). The badge earner decides which badges are public and shares these badges in digital format with his/her chosen audience. Open badges can be linked or embedded in any digital environment, or shared directly in social media applications, such as LinkedIn, Twitter, and Facebook. Some learning management systems support the collecting of open badges and offer a visualization of the learner's development (Brauer & Ruhalahti, 2014).

METHODOLOGY

The Context of the Study

This study is a part of the Teachers' Badges Project in Finland funded by the Ministry of Education and Culture. The Teachers' Badges Project aims to create and establish a national digital badge system to support the recognition and acknowledgment of professional competences for vocational teachers. In the Teachers' Badges Project, the badge constellation represents one part of the competence framework for future teachers. The project aimed to assist the national VET reform by supporting the changing role of teachers (Teachers' Badge Project, 2020).

The context of the study is a vocational teacher education program (60 ECTS). Student teachers have a study module called “Research, development, and innovation (RDI)” (6 ECTS), the focus of the present study. The Finnish Ministry of Education and Culture has granted funds to study and develop open badges in the teacher education context. The project timeline is for two years with the objective of creating an open badge constellation around vocational teachers’ competences found to be significant after Finland’s reform of the vocational education and training sector.

Figure 3 presents the Badge Constellation of Vocational Teachers’ Competence. The constellation is a living document, and there will be new competences as well as replaced competences over time. The constellation consists of six competence areas: Learning and Guidance, Networking, Working Community, Development, Personalized Learning, and Assessment.

FIGURE 3
THE BADGE CONSTELLATION OF VOCATIONAL TEACHERS



(Teachers’ Badges Project, 2020)

One of the pilot projects was attached to vocational student teachers’ RDI studies (competence area of development). Student teachers had to make their competence visible in three RDI themes: information seeking, scientific writing, and working in RDI projects. After achieving the three open badges, they were automatically issued a meta badge called “RDI Competence for Vocational Teachers.” The design of the learning process closely followed Brauer’s (2019) open badge-driven learning. Quite often, student teachers had earlier-achieved knowledge related to RDI, and therefore, the pilot was helpful in making this earlier knowledge visible without having participated in lectures. Pilot implementation followed open badge-driven learning with learning materials provided in the Moodle online learning environment. Students could follow their own timetables; the teacher was not present. Student teachers applied for open badges via the badge management system (Open Badge Factory) by demonstrating their competences in digital format.

Participants, Data, and Analysis

The participants ($n=26$) in the study were vocational student teachers who were studying in the vocational teacher education program during the 2018-2019 academic year. Their age and background experience in teaching and learning varied greatly. 38% of participants were men ($n=10$), and 62% were women ($n=16$). 46% of the participants ($n=12$) had received open badges before. They had gained badges for various digital skills or digitality in education trainings elsewhere. Others had no previous experience with open badges. The RDI studies by open badge-driven learning processes were conducted at the end of the studies.

An online semi-structured questionnaire explored how student teachers discovered RDI badges, the badges' utility in competence development, and opinions on how open badges could be used in future vocational teacher training programs. Participants were also asked how they felt open badges developed their personal competences in line with the learning objectives and assessment criteria. The questionnaire contained questions using a scale from 1 to 5. It also included open-ended questions about the benefits, challenges, and possibilities of using open badges in teacher education.

RESULTS

The median of all scaled questions was not higher than 2.7. Participants believed badges were most effective at demonstrating skills (median 3.5). Participants rated the usefulness of open badges with a median of 2.9. Many participants reported that they had earlier achieved the competences related to two badges: information seeking and working in RDI projects. Only three participants studied the topics using the self-directed online Moodle course. The open badge-driven learning process was not experienced as holding relevance when developing RDI competences during the vocational teacher studies. In general, participants felt that writing the RDI report was more important than the open badges. They felt that open badges caused extra work for them. Most of the participants applied for open badges only after the entire RDI course had been assessed and accepted. The following comments clarify these points:

“I experienced RDI Open badges as pretentious. In my opinion, the RDI work itself says more about competence than these open badges.”

“They (open badges) can be used to demonstrate your skills. However, I did not experience them to be meaningful because the RDI skills concerning these open badges were already familiar to me.”

“Probably these open badges are part of modern portfolios and social media types of communication. But I'm an old-fashioned person. I think that if you have completed some degree of education, the assumption is that you have the competence.”

Nonetheless, many participants also noted benefits, particularly related to the demonstration of RDI competence:

“Competence marks (open badges) look good in a portfolio. And I think it's a good way to show your own skills, for example, when looking for a job.”

“I hope they can be used when I search for a teacher job or also in some other studies.”

“I see them as a way to demonstrate competence, for example, if you are applying for a job in the field of education that has RDI requirements.”

For some of the student teachers, RDI open badges assisted in the development of RDI competence as part of a self-directed independent study model:

“Quite a convenient way to demonstrate competence on your own time and at your own pace without having to jointly schedule or use teaching resources.”

“A good idea because it will certainly challenge you to learn differently than previous research has been taught. I think this would also be useful for bachelor’s degrees.”

“Nice entities, and through them, I got to know new things and got new perspectives and skills. You have to look at how the use of open badges spreads; they still seem to be new things for many.”

Most of the participants (73%) stated that they would publish the open badges in their ePortfolios and/or on their LinkedIn profile. As noted before, about half of the participants were familiar with open badges, having received them during their vocational teacher studies or elsewhere. They did not find the open badges of RDI more useful than other participants; however, they were able to compare RDI badges to other kinds of open badges.

The participants believed that open badges should offer added value to teacher studies and found the RDI badges to be impersonal. They found open badges to be most useful when they offered additional information about the competences that participants had received during their teacher studies and not mentioned in the certification. These kinds of competences include assessment and online teaching skills. Participants suggested that special teacher training practices might be good for open badge recognition. In addition, participants suggested attaching open badges more closely to the learning assignments of the teacher education program in order to avoid extra work. Finally, they suggested automation of some open badge accreditations.

CONCLUSION

This study shows that RDI badges did not support the self-directed learning and skills demonstrations planned by the structure of open badge-driven learning. However, it does reveal that open badges supported the process of students who had prior knowledge of RDI and simply needed to demonstrate their skills to pass the course. It should be noted that, in the context of the study, the vocational student teachers generally had some prior knowledge and competence related to the vocational teacher education curriculum. The participants primarily worked as vocational teachers during their teacher studies. Therefore, it was important to use open badges to recognize earlier achieved competences.

The constellation of vocational teachers’ competences could include an open badge related to RDI competences. However, it might be worth considering that one open badge could cover the three smaller RDI open badges using broader learning objectives and assessment criteria. This change would make it easier for students to apply and increase their willingness to apply for badges after studying and passing the entire RDI course. As Halttunen, Koivisto, and Billet (2014) discovered, participants are willing to share their achieved badges via their ePortfolio and LinkedIn profiles, which would make their RDI competence visible. Therefore, some modifications to the open badges would benefit student teachers’ learning processes while making their competence visible for RDI competence. Open badges were perceived useful as a display of competence and as a tool in their job searches. Recent studies (Brauer et al., 2017; Brauer et al., 2018a; Brauer et al., 2019; Brauer et al., 2018b) have indicated how competence-based assessment and digital open badges can help vocational teachers develop their own competences.

Open badges should be arranged around competences, and this study revealed that competences other than RDI are better organized using open badges. These competences include assessment and working as an online teacher. In addition, teacher training practices following special methods could benefit from open badge recognition. These aforementioned competences generally are not documented in the certification of the vocational teacher education, but they are important during teachers’ careers. In future skills demonstrations should be organized via competence themes. Open badges could be used to make hidden competences visible in areas of competence that do not appear on the vocational teacher certificate.

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