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# VOCATIONAL TEACHERS' COMPETENCES VISIBLE BY OPEN BADGES

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## Abstract

After the reform of vocational education and training sector in Finland there rise a need to focus on vocational teachers' new competences related. The national project called "Teacher's open badges" explored the needed competences collaboratively by all vocational teacher education institutes in Finland. Open badges as instruments to recognize competences is contained in the project. Open badges are digital information storages that include information of a certain competence; learning objectives, assessment criteria, skills demonstration instructions and earner's evidence of competence. Open badges are digital micro credentials and applicants demonstrate their skills via authentic educational providers' context. It is possible to structure studies by open badge-driven learning process and it has been discovered that scaffolding students appears effectively then. One of the project pilots concerned vocational student teaches' research, development, and innovation (RDI) competence that was designed by the open badge-driven learning process. Online learning material was created and students decided themselves if they needed to study it. In all three themes (information search, scientific writing, working in RDI projects) they applied open badges via badge management system (Open Badge Factory) by demonstrating their skills in a digital format. Finally, a meta badge collected all earned badges and "RDI competence of vocational teacher" was issued. The data was collected through online survey ( $n=26$ ) from student teachers in spring 2019 right after the piloting period. The results revealed that student teachers found open badges useful for showing one's competence for job application purposes and they attached earned open badges (RDI competence) into their ePortfolios as well as shared badges also in other digital environments. In addition, student teachers expressed that they want to have specific teacher's competences recognized by open badges, such as assessment and working as an online teacher that are not mentioned especially in the formal certification. The future recommendation is to consider topics of skills demonstrations via competence themes.

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

## 1 INTRODUCTION

### 1.1 Open badges

Open badges are relatively new approach in education practices. Open badges are for identifying and promoting competences and they are in a form of digital microcredentials [1, 2]. Open badges are information storages that contain a visual image as an icon, the name of the badge, issuer, competence description, assessment criteria and evidence of badge earner's competence [3]. Figure 1 is presenting the information that an open badge is composed by. Badge criteria explains the competence by learning objects and assessment criteria, as well as the instructions for skills demonstration. It will help the applicants to demonstrate their skills and competences when badge criteria are composed with details, in addition, criteria help applicants to make a self-assessment of their own performance [4].

*Figure 1. Anatomy of open badges (Bowen, 2018).*

The open badge may include several kinds of evidence in digital format by which applicants demonstrate their competences [5]. The issued open badges are open information sources that are visible to all viewers and competence related can be recognized again [6]. In order to achieve an open badge usually badge application is sent to the issuer [5]. The application includes the evidence by which the applicant demonstrates his or her competence and it is made in digital format by text, photo, figure, video, mind map or other way using digital tools and applications. The evidence is following to the issued badge and everyone who explores issued badges may take a look at the provided evidence.

## **1.2 Structure for open badge-driven learning**

[7] has created the structure for open badge-driven learning process that is presented in Figure 2. By the structure it possible to design learning activities for students when open badges are utilized in skills demonstration. The open badge-driven learning process requires a design for 1) easy access online materials, 2) composed badge criteria, 3) instructional badging, and 4) updating development plans.

*Figure 2. The structure for open badge-driven learning [7].*

Easy access online materials are in a form of an online course that often is self-directed and may be studied in students' own timetable. Open badge applications are usually linked to online learning materials in order to support the understanding of learning objectives and assessment criteria.

The open badge constellation is a visual map of all badges that is possible to earn during one training course or some other kind of competence development program [7]. It is usually created with different levels of competences that may motivate students to move further in their learning process and sometimes it has also a gamification approach [8].

Scaffolding appears when badge issuer reads the applicant's badge application and gives instructions and support how to continue learning if badge criteria is not fully met. In addition to badge issuer's (e.g. teacher) supportive comments, students appreciate to have guidance and feedback from their peers and therefore collaborative learning communities are suggested to attach to learning processes with open badges [8]. Scaffolding is given constantly to support students to continue and focus their learning in order to meet learning objectives. By the study of [9] the researchers noticed that the Open Badge-Driven learning process follows fully the five-stage scaffolding model [10]. In addition, the Open Badge-Driven learning process gives opportunity to add gamification elements to support and scaffold students' learning [9]. Learning and making competences visible by open badges is a method to scaffold student's learning. With the help of teacher's scaffolding the personal learning paths are possible to compose by open badges that are provided by an open badge constellation.

### **1.3 Collecting and sharing open badges**

To conduct activities based on open badges some badge management system is needed where to create badges and badge application forms, receive badge application from applicants, scaffold, and assess applicants [4]. There are several badge management systems, such as Open Badge Factory and Badgr. Many providers of badge management systems use the Open Badge Infrastructure that enables transferring badges between different digital environments [11].

In addition, an environment for collecting and sharing badges are required. The Open Badge Infrastructure allows applicants to collect their achieved badges from various issuers [12]. Open badge earners can save badges into their personal repository, such as Open Badge Passport or Mozilla Backpack [2]. The badge earner makes the decision which badges are public and shares badges in digital format to the audience that she or he wants. The open badges can be linked or embedded to any digital environment, or shared directly in social media applications, such as LinkedIn, Twitter and Facebook. Some learning management systems support collecting open badges and offer a visualisation of learner's development [2].

## **2 METHODOLOGY**

### **2.1 The context of the study**

The context of the study is vocational teacher education program (60 ECTS). Student teachers have a study module called "Research, development, and innovation (RDI)" (6 ECTS) that is under the present study. Finnish ministry of education and culture have granted funds to study open badges in teacher education context. The project is for two years and the objective of the project is to create open badge constellation around vocational teachers' competences that are found significant after a reform of vocational education and training sector in Finland. The Badge Constellation of Vocational teachers' competence is under the construction and RDI competence wanted to be studied in order to decide if it is relevant vocational teachers' competence that is needed to recognize by open badges. The constellation is a living document and there will be new competences as well as replaced competences in the course of time.

One of the project pilots was attached to student teachers' RDI studies. Quite often student teachers have earlier achieved knowledge related to RDI and therefore the pilot seem to be relevant to conduct to make earlier knowledge visible without studies. However, also the MOOC (massive open online course) style studies were offered to student teachers. Learning material was provided by online learning environment Moodle where a learning design has been built up. All studies were possible to study by students' own timetable and teacher was not present but instead the Moodle course was conducted as self-directed studies. Those who participated to the MOOC style studies made their competence in RDI visible by also open badges. Teacher students had to make their competence visible in three themes of RDI: information search, scientific writing, and working in RDI projects. After

the three achieved open badges they was issued automatically the meta badge called "RDI competence of vocational teacher".

## 2.2 Participants, data and analysis

The participants of the study were vocational student teachers who studied in vocational teacher education program in academic year 2018-2019. The RDI studies related to open badges were conducted in the end of the studies. By the online semi-structured questionnaire it was explored how student teachers discovered RDI badges, where they useful in competence development, and how open badges could be used in vocational teacher training program in future. Participants were also asked how they felt open badges developed their personal competence in line with learning objectives and assessment criteria of the open badges.

The questionnaire contained questions with scale from 1 to 5. In addition, open ended questions were asked. By the questionnaire 26 answers were received.

## 3 RESULTS

The median of all scale questions was not higher than 2,7. Open badges were experienced to be the best in skills demonstration process (median 3,5). The usefulness of open badges was experienced with the median 2,9. Many participants reported that they have earlier achieved the competence related to two badges: information search and working in RDI projects. Only three participants studied the topics by the self-directed online Moodle course. The open badge driven learning process was not experienced relevant in developing RDI competences during the vocational teacher studies. In general, participants felt that writing the RDI report was more important than the open badges related. They felt that open badges were causing an extra work for them. Most of the participants applied open badges after the whole RDI course was assessed and accepted.

Most of the participants (73 %) informed that they will publish the open badges in their ePortfolios and/or in their LinkedIn profile. Half of the participants were familiar with open badges as they have received these earlier during other learning processes during the vocational teacher studies. They did not find the open badges of RDI more useful than other participants, however, they were able to compare RDI badges to other kind of open badges.

The participants required that open badges should offer some added value to teacher studies and RDI badges were found impersonal. They find that open badges are the most useful when they offer some additional information about the competences that participants have received during the teacher studies and that is not written in the qualification. These kinds of competences are such as assessment and working as an online teacher. Participants suggested that with special methods conducted teacher training practices might be relevant to recognize by open badge. In addition, participants suggested to attach open badges more closely to the learning assignments of the teacher education program in order to avoid extra work. At the same time some automated open badge accreditations were suggested.

## 4 CONCLUSIONS

By this study it seems that RDI badges did not support self-directed learning and skills demonstrations that were planned by the structure of open badge-driven learning. It may be revealed, however, that open badges supported those students process who had prior knowledge of RDI and just needed to demonstrate their skills by open badges to pass the course. In the content of the study it is often the situation that vocational student teachers have some prior knowledge and competence related to the vocational teacher education curriculum since they are mainly working as vocational teachers during their teacher studies. Therefore it is important to consider using open badges for recognising earlier achieved competences.

The constellation of vocational teachers' competences could consist an open badge that relates to RDI competences. However, it might be relevant to consider that one open badge would cover the three smaller RDI open badges with wider learning objective and assessment criteria. It would be easier for students to apply and it follows their willingness to apply badges after the whole course of RDI is studied and passed. Because participants were willing to share their achieved badges via ePortfolio and LinkedIn profile as [13] have discovered, the RDI competence is relevant to make

visible and therefore some modification of the open badges would benefit student teachers learning processes as well as making their competence visible related to RDI competence.

Open badges should be arranged around competences and the study revealed that also some other than RDI competences are useful to organize by open badges. These competences are such as assessment and working as an online teacher. In addition, teacher training practices that have been conducted with special methods might be relevant to recognize by an open badge. These before mentioned competences are the kind that are not detailed written in the certification of the vocational teacher education qualification but are important competences to show during the teacher career.

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