



Would e-portfolio with learning analytics be an enriching tool in teacher education? The perceptions of student teachers

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Introduction

The use of e-portfolios (Van der Schaaf, Stokking & Verloop, 2008; Bok et al., 2012)

Benefits of e-portfolios

- Powerful tool for capturing student learning (Butler, 2006)
- Provides a seamless and holistic review process (Wray, 2007)
- The possibility to work in different environments (Wray, 2007)



However...

Challenges of the e-portfolios

- Implementation may be a complex process (Granberg, 2010)
- Need for the digital technology skills (Wray, 2007)
- Students need to be instructed and supported in the implementation of new technology (Woodward & Nanlohy, 2004)



Introduction

- **Learning analytics:** the measurement, collection, analysis and reporting of data about learners and their contexts, for the purpose of understanding and optimising learning (Solar, 2013).
- **The importance of perceptions**



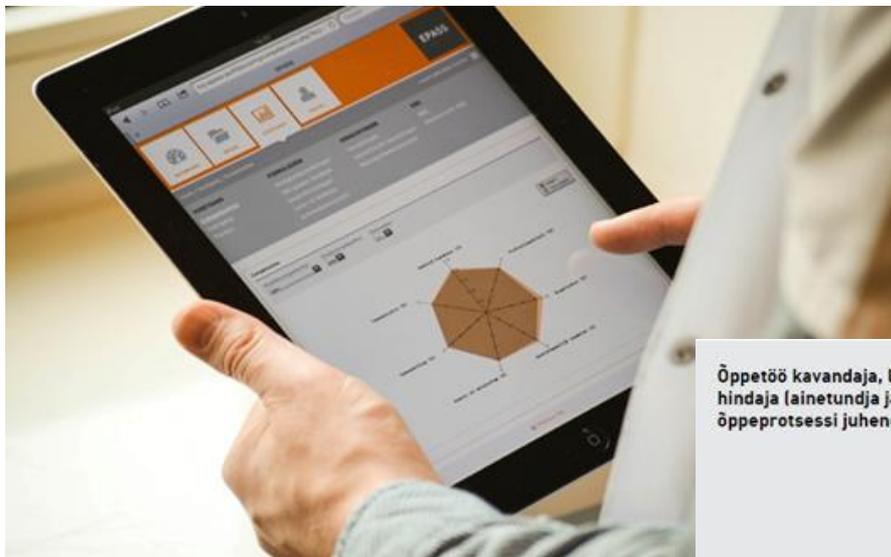
The aim of the study

- The aim of this study is to explore the perceptions of student teachers who were assessed in their internship with the e-portfolio that is enriched with LA applications.

Professional roles	Tasks	Level 0	Level 1	Level 2	Level 3	Level 4
Designer, supervisor and evaluator of learning activities (subject knowledge and supervisor of the learning process)	1. Sets learning goals for the lessons and knows the learning goals of the curriculum	The teacher does not set the learning goals for the lessons. He/she does not know the learning goals of the curriculum. He/she does not take into account the differences between students.	The teacher takes over the learning goals for the lessons from others. He/she rarely checks if the learning goals are in accordance with the curriculum goals. He/she rarely takes into account the differences between students.	The teacher takes over the learning goals for the lessons from others and checks if those goals are in accordance with the curriculum goals. Most of the time he/she takes into account the differences between students.	The teacher sets the learning goals for the lessons that are in accordance with the curriculum goals. He/she regularly takes into account the differences between students.	The teacher sets the learning goals for the lessons that are in accordance with the curriculum goals. If needed, he/she sets the learning goals for the whole curriculum. He/she takes into account the differences between students.
	2. Chooses or designs appropriate learning materials and methods according to the learning goals	The teacher chooses learning materials and methods developed by others that are not in accordance with the learning goals for the lesson.	The teacher chooses learning materials and methods developed by others. He/she rarely checks if those materials and methods are in accordance with the learning goals for the lesson. The chosen materials and methods are uniform and targeted to the class as a whole.	The teacher chooses learning materials and methods developed by others and if needed, he/she adapts those. He/she checks, if the learning materials and methods are in accordance with the learning goals for the lesson. The teacher chooses different materials and methods that are mainly targeted to the class as a whole.	The teacher chooses learning materials and methods developed by others, adapts those and if needed, designs new materials and methods that are in accordance with the learning goal. He/she varies the learning materials and methods according to the differences in student levels.	The teacher chooses learning materials and methods developed by others, adapts and varies those and also designs new materials and methods that are in accordance with the learning goal. He/she is capable to bring variation and creativity to the learning materials and methods, which are in accordance with students' individual differences.
	3. Plans the execution of learning activities	The teacher does not plan the lesson with a clear time structure. He/she does not have an alternative plan for different (to be expected) situations.	The teacher rarely plans a clear time structure. He/she rarely has an alternative plan for different (to be expected) situations.	The teacher plans a lesson that mostly is clearly structured. Introduction, core and closing. He/she most of the time has an alternative plan for different (to be expected) situations.	The teacher plans a lesson that is clearly structured. He/she can partly predict different (to be expected) situations and if needed, he/she has an alternative plan.	The teacher plans a lesson that is clearly structured. He/she can predict different (to be expected) situations and has an alternative plan.
	4. Carries out the learning activities	The teacher constantly has difficulties to follow the lesson plan and carry out the learning activities. He/she does not keep in mind the set learning goals and does not carry out the lesson as a complete.	The teacher has difficulties to follow the lesson plan and carry out the learning activities. He/she constantly has difficulties to keep in mind the learning goals and carry out the lesson as a complete.	The teacher mostly carries out the lesson according to the lesson plan and implements the planned materials and methods. He/she explains the connections between learning goals and activities in the beginning of the lesson.	The teacher carries out a clearly structured lesson and implements the planned materials and methods. He/she gives clear instructions and explains the connections between learning goals and activities in the beginning or in the end of the lesson.	The teacher carries out a complete and clearly structured lesson. He/she effectively implements the planned materials and methods. He/she gives clear instructions and explains the different parts of the lesson. He/she explains the connections between learning goals and activities.
	5. Evaluates the pupils' accomplishment of the learning goals and gives them feedback	The teacher has difficulties to find and choose previously developed evaluation instruments and guides. He/she does not interpret the results and does not give supportive feedback to students.	The teacher chooses previously developed evaluation instruments and guides. He/she interprets the results seldom. He/she rarely gives students a supportive feedback.	The teacher chooses previously developed evaluation instruments and guides. He/she adapts those. He/she checks, if the learning materials and methods are in accordance with the learning goals for the lesson. The chosen materials and methods are uniform and targeted to the class as a whole.	The teacher chooses previously developed evaluation instruments and guides. He/she is critical about the instruments and guides, and if necessary, the teacher adapts and varies those. He/she analyzes and interprets the results regularly and gives students a supportive feedback.	The teacher knows when the new evaluation instruments are necessary and in case of need, he/she develops new relevant instruments and guides in addition to the available ones. He/she checks the reliability and validity of the instruments. The teacher varies different types of evaluation, also analyzes and interprets the results. He/she gives students a supportive feedback and guides them to acquire new studying strategies.
Designer of the learning environment	6. Is interested in pupils as individuals and as a group, builds a supportive relationship	The teacher does not show any interest in what influences and motivates the students. He/she does not give the students opportunities to show their initiative and he/she is not interested in the group's social relationships.	The teacher shows little interest in what influences and motivates the students. He/she gives the students few opportunities to show their initiative. He/she has a little interest in the group's social relationships and he/she takes it rarely into account.	The teacher is somewhat interested in what influences and motivates the students. He/she gives the students opportunities to show their initiative, but does not take it always into account. He/she notices the interactions between the students and takes it sometimes into account.	The teacher is interested in and knows what influences and motivates the students. The students can show their initiative and the teacher takes it sometimes into an account and uses it. He/she mostly knows the students' social position in the group and takes it into account.	The teacher is constantly interested in students as individuals and as a group. He/she knows what influences and motivates them. He/she encourages the students to show their initiative and he/she decides (sometimes in a collaboration with students) how to use it. The teacher has a good overview of the social relationships in the group and he/she takes it into an account.
	7. Directs the communication processes in the group	The teacher communicates with the students in an inefficient way and he/she is insufficiently aware of what is going on in the classroom. The teacher is not correcting or rewarding the students and cannot react to the events in the classroom. He/she has difficulties to create a safe and collaborative environment. There are no agreed behavioural norms in the classroom.	The teacher has difficulties to communicate with students and he/she is slightly aware of what is going on in the classroom. He/she limply corrects and rewards the students and reacts to the events too little or too much. As a result, he/she has difficulties to create a safe and collaborative environment. The behavioural norms in the classroom are not always clear.	The teacher communicates with the students effectively on the level of subject content and he/she is little slightly aware of what is going on in the classroom. He/she is aware of the relationships between students. He/she rewards and corrects the students according to a fixed set of criteria. Based on his/her own behavioural norms the teacher creates a safe and collaborative environment.	The teacher communicates effectively on the level of subject content and on the level of general communication. He/she is aware of what is going on in the classroom. He/she is able to create a good working environment. In different groups and can keep it with correcting and rewarding the students based on clear criteria. The teacher involves students in the behavioural criteria decision making. He/she and the students create a safe and collaborative environment.	The teacher and the students communicate with each other effectively on the level of subject content and on the level of general communication. The teacher is aware of what is going on in the classroom. He/she can keep a good working environment while correcting and rewarding the students flexibly as required and based on clear criteria. The teacher guides the students to analyse and be responsible for their behaviour. He/she creates a safe and collaborative environment.
Supporter of the child's development	8. Supports the development of the pupils as persons	The teacher has no overview of the different aspects of the students' development and the associated problems. He/she does not guide the students to think about their own behaviour and personal views. He/she does not recognize the learning disabilities.	The teacher has an overview of some aspects of the students' development and the associated problems. He/she rarely guides the students to think about their behaviour and personal views. The teacher can recognize some learning disabilities, but is not able to instruct those students according to the problem.	The teacher has an overview of the different aspects of the students' development and he/she notices their development according to the age group characteristics. He/she sometimes guides the students to think about their behaviour and personal views. The teacher notices learning disabilities and is sometimes capable to instruct.	The teacher has a good overview of the different aspects of the students' development. He/she notices students' development both on the individual and group level. He/she gives the students opportunities to think about their behaviour and personal views. The teacher is able to keep an eye on students' personal development both during the class and outside the class (e.g. during the breaks between classes). The teacher is able to guide the students according to their learning disabilities and he/she notices their daily problems.	The teacher has a very good overview of the different aspects of the students' development. He/she notices students' development both on the individual and group level. He/she regularly gives the students opportunities to think about their own behaviour and personal views. The teacher keeps an eye on students' personal development and guides them according to their learning disabilities and daily problems both during the class and outside the class.
Member of the professional community	9. Carries out tasks beyond the lesson and the subject	The teacher does not take part in the activities outside the class or his/her subject.	The teacher is primarily focused on the teaching tasks, but sometimes he/she takes part of the students' activities outside the class or his/her subject.	The teacher has an overview of the activities in the school, he/she takes part of the activities outside the class or his/her subject both directed to students and teachers. If needed, he/she carries out the events. If needed, the teacher contributes to the execution of the school's pedagogical vision, participating in the development process of the school curriculum.	The teacher takes part of, carries out and is responsible for different activities outside the class and his/her subject both directed to students and teachers. The teacher represents the school professionally and contributes to the execution of the school's pedagogical vision, participating in the development process of the school curriculum.	The teacher takes initiative to start activities outside the class and his/her subject both directed to students and teachers. He/she represents the school professionally and contributes to the execution of the school's pedagogical vision. He/she is a decision maker in the development process of the school and/or national curriculum.
	10. Collaborates with colleagues (including support specialists) and parents	The teacher does not collaborate with colleagues and parents. He/she does not take part in the different working groups in his/her school.	The teacher carries out his/her lessons and meets his/her colleagues rarely, actively participating. The teacher does not communicate with the parents.	The teacher communicates and collaborates with his/her colleagues mainly on his/her teaching tasks level. He/she takes part of some working groups' activities. He/she rarely communicates with the parents.	The teacher communicates with his/her colleagues every day and collaborates with them. If needed, the teacher consults with the support specialists. The teacher takes actively part in the discussions and activities related to the school. He/she regularly communicates with the parents.	The teacher is collaborating with his/her colleagues, support specialists and parents. He/she takes part of and starts different discussions and activities both in his/her school and outside the school.
Manager of own professional development	11. Analyses and improves his/her professional activities and knowledge	The teacher does not seek or take into account the feedback from supervisors, colleagues and students. He/she does not describe his/her actions and cannot distinguish the causes and effects that could influence his/her actions. The teacher does not seek alternatives for his/her actions.	The teacher is opened to the feedback from his/her supervisors, but he/she does not analyse it and considers only few suggestions. He/she can describe his/her actions, but cannot distinguish the causes and effects that could influence his/her actions. While planning his/her actions, the teacher does not think about the alternatives and does not seek solutions in order to improve his/her actions.	The teacher is opened to the feedback from his/her supervisors and colleagues. He/she rarely analyses the feedback, but considers the suggestions. He/she can describe his/her actions and sometimes distinguishes the causes and effects. The teacher seeks for alternatives in order to improve his/her actions and professional knowledge according to the feedback and somewhat to the self-reflection.	The teacher regularly asks for feedback from his/her supervisors, colleagues and students. He/she analyses the received feedback and considers the relevant suggestions. Taking into account the perspective of the school and students, he/she describes his/her actions. The teacher recognizes the causes and effects that are influencing his/her actions. The teacher seeks for alternatives to improve his/her actions and professional knowledge according to the received feedback and self-reflection.	The teacher finds and chooses different forms of reflection and feedback to his/her actions and analyzing it. He/she makes necessary changes and can explain those according to the awareness of his/her professional actions. The teacher constantly improves his/her professional knowledge in order to use alternatives in his/her actions.
	12. Carries out research on teaching and learning	The teacher does not investigate teaching and learning.	The teacher rarely reads specific scientific literature and rarely connects his/her own teaching with the theory.	The teacher sometimes reads specific scientific literature and connects his/her own teaching with the theory.	The teacher often reads specific scientific literature. He/she partially investigates his/her own teaching and students' learning.	The teacher regularly reads specific scientific literature. He/she investigates his/her own teaching and students' learning.



The e-portfolio



Õppetöö kavandaja, läbiviija ja hindaja (ainetundja ja õppeprotsessi juhendaja)

01. Püstitab õppe-eesmärgid ainetundidele ning teab ainekava õppe-eesmäärke

Õpetaja püstitab/ ei püstita ainetundidele õppe-eesmäärke. Ta on/ ei ole teadlik ainekava õppe-eesmärkidest.

0 1 2 3 4 Ei märgi taset

Õpetaja arvestab/ ei arvesta tunni eesmärgistamisel õpilaste eripäradega.

0 1 2 3 4 Ei märgi taset

Kommentaar >

02. Valib või töötab välja sobivad õppematerjalid ning -meetodid lähtuvalt õppe-eesmärkidest

Õpetaja valib välja õppematerjalid ja -meetodid, mis on/ ei ole kooskõlas tunni õppe-eesmärkidega.

0 1 2 3 4 Ei märgi taset

Kommentaar >

03. Planeerib õppetöö läbiviimist

Õpetaja planeerib/ ei planeeri tunni erinevate etappide ajalist läbiviimist.

0 1 2 3 4 Ei märgi taset

Õpetajal on/ ei ole olemas erinevate (etteaimatavate) olukordade jaoks alternatiivsed plaanid.

0 1 2 3 4 Ei märgi taset



The automated feedback

EPASS

↓

Just in Time feedback

Õhki! Õppe-eesmärgid saavutamised ongi suurt õppitulekut teinud!

Kõik sulle õppimise eesmärgid on tähtsad! Proovida! (See 0) Sinu tulemused parandamiseks peadki sa saavutama selle õppimise järgmise taseme.

[Tasemeid tõlgendused](#)

Sisu põhineva teabe saamiseks võta ühendust õpetaja.

[Õpetaja aadress](#)

Kõik sulle teatav võlgu teinud õppematerjalid on saavutatud teinud õppe-eesmärgid!

Kõik sulle õppimise eesmärgid on tähtsad! Proovida! (See 0) Sinu tulemused parandamiseks peadki sa saavutama selle õppimise järgmise taseme.

[Tasemeid tõlgendused](#)

Kasutaja andmed

Õpetaja nimi: [Redacted] | Nimi: Piret Klatt
 E-post: [Redacted] | E-mail: IT.Teacher@epass.ee
 Telefoninumber: [Redacted] | Telefoninumber: [Redacted]
 Kõik muusik: 090 / 5090

Minu tase

Õpetaja: [Redacted]
 Õpilane: [Redacted]

Õpetaja tegevused, õpilaste ja õpetaja tegevused ja õppematerjalid

Õpilaste tegevused: [Redacted]

Õpetaja tegevused: [Redacted]

Õppematerjalid: [Redacted]

Just in Time feedback

<< Tagasi

Välja või töötab välja sobivad õppematerjalid ning -meetodid lähtuvalt õppe-eesmärkidest

Selle tegevuse raames on veel arenguruumi. Oma tulemuse parandamiseks peadki sa saavutama selle tegevuse järgmise taseme.

Sa oled tasemel 0 (ebapiisav) tegevuses välja sobivad õppematerjalid ja -meetodid, mis on kooskõlas tunni õppe-eesmärkidega ja õpilaste eripäradega. Järgmise taseme saavutamiseks peadki sa: "Kui sa välid eelnevalt teiste poolt väljatootatud õppematerjalid ja -meetodid kontrolli, et need oleksid kooskõlas tunni õppe-eesmärkidega. Sinu valitud materjalid ja meetodid olid ühekülgsed ja suunatud klassile kui tervikule."



Sample

- 13 student teachers of the final (fifth) year of the primary school teacher curriculum
- Age between 22 and 34 years
- No one had had any prior experiences with e-portfolios
- Internship period of six weeks
- Eight lessons were observed



Method

- **Questionnaire** (adapted from Venkatesh et al., 2003):
 - **Job-fit** (the extent to which an individual believes that using a technology can enhance the performance of his or her job) (Thompson et al. 1991)
 - **Complexity** (the degree to which a system is perceived as relatively difficult to understand and use (Thompson et al. 1991).
5-point Likert scale (1-fully disagree; 5- fully agree)

- **Focus group interviews**



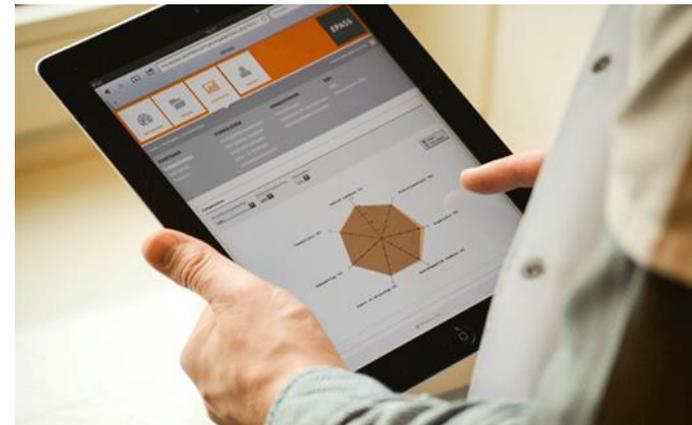
Students' perceptions about the e-portfolio

Job-fit ($M=2.67$, $SD=.83$)

- Few students agreed that the e-portfolio would increase the quality of their professional activities or supported their development
- Good overview of the criteria

Complexity ($M=3.40$, $SD=.74$)

- The e-portfolio was easy to use and did not take too much time
- Decrease in the use of paper
- Development is easily observable
- Some technical problems
- Organisation of the implementation





Students' perceptions about the automated feedback module

Job-fit (M=3.00, SD=.93)

- Supports the development of the professional activities

Complexity (M=3.38, SD=.85)

- Was easy to use
- Did not take too much time
- Is it personalised feedback?

Kasutaja andmed

Ühtegi fotot pole saadaval

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 Kõik manused: 0MB / 50MB

Minu rollid

Rastal: 1
 Semester: 1

Õppetöö kavandaja, läbiviija ja hindaja (ainetundja ja õppeprotsessi juhendaja) (0)

Õppematerjalide koostaja (0)

Lapse arengu toetaja (0)

Professionaalne kolleeg (0)

Just In Time feedback

<< Tagasi

Valib või töötab välja sobivad õppematerjalid ning -meetodid lähtuvalt õppe-eesmärkidest

Selle tegevuse juures on veel arenguruumi. Oma tulemuse parandamiseks peaksid sa saavutama selle tegevuse järgmise taseme.

Sa oled tasemel 0 (ebapiisav) tegevuses valid välja õppematerjalid ja -meetodid, mis on kooskõlas tunni õppe-eesmärkidega ja õpilaste enipäradega. Järgmise taseme saavutamiseks peaksid sa: "Kui sa valid eelnevalt teiste poolt väljatöötatud õppematerjalid ja -meetodid kontrolli, et need oleksid kooskõlas tunni õppe-eesmärkidega. Sinu valitud materjalid ja meetodid olid ühekülgseid ja suunatud klassile kui tervikule."



Is the e-portfolio an enriching tool in teacher education?

- The answer is yes, **HOWEVER...**
 - The implementation needs even more support and guidance in order to help the students gain more in their professional development



Thank you!

Questions?

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This project has been funded with support from the European Commission.

<http://www.project-watchme.eu/>



WATCH ME

TEACHER
EDUCATION

MEDICAL
EDUCATION

VETERINARY
EDUCATION

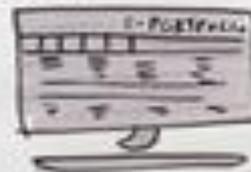
3 TARGET GROUPS

WORK-PLACE LEARNING

I'M TRYING
TO USE A
SUFFICIENT
TEACHING
METHOD WITH
YOU

WHAT IS IT THAT
THE STUDENTS
STILL NEED TO
CARRY ON THEIR
PRACTICE?

WE USE VISUALISATION, ELECTRONIC PORTFOLIOS



WATCHME

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