Pedagogical quality of VET teachers and management in Denmark – legislative framework and implementation in VET colleges

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This article is written from the viewpoint of a provider of VET teacher education, VET research, and consultancy service with regard to innovation and development projects in VET schools. The article describes the actions taken from The Danish Ministry of Education with regard to improving the pedagogical quality of VET teachers and VET managers, - as well as the approach of NCE to implement these and in this way to improve the learning school environment of the VET schools.

Contents

Introduction

The importance of a lift of the pedagogical competences is in focus in the VET-schools in Denmark because of a politically expressed wish to raise the quality and reputation of VET education and attract more resourceful students. Much has happened with regard to this in Denmark during the last five years, as it can be read in this article.

Denmark has had a dual VET system for many years. The Danish VET system is part of the overall youth education system and aims at developing the general, personal, and vocational skills of young people. The system is based on three main principles:

- the dual training principle, i.e. periods in school alternating with periods of training in an enterprise. This principle ensures that the apprentice acquire theoretical, practical, general and personal skills which are in demand by the labour market;
- the principle of social partner involvement, whereby the social partners take part directly in the overall decision making and daily running of the VET system;
- the principle of lifelong learning, i.e. the system is highly flexible, offering learners the possibility of taking part of a qualification now and returning to the VET system at a later point in time to add to their VET qualifications in order to access further and higher education. Furthermore, VET and continuing VET (CVET) are integrated in order to ensure coherence between different qualifications and competence levels.

The VET programs in Denmark are described on level 3-5 of the EQF Framework[1]. The VET programs are carried out at technical colleges, social and healthcare colleges, business colleges, agricultural colleges, and at adult VET Centers. The system is well functioning with general acceptance and economical involvement from the labour market. During the crisis in Europe, for instance, Denmark has managed to have very low rate of youth unemployment (13%, - while for instance Finland had 22%). Nevertheless Denmark faces some general problems regarding VET. Among others a general low reputation among young people and their parents and a continuous lower amount of young people entering VET education (and a continuously higher average age when entering VET. 2014 the average age was 24 years). Furthermore there is a high dropout rate – as well in the school part as in the practice part of the VET program.

Denmark has tried to solve these problems with a reform in VET[2]. The reform is being implemented from August 2015. The main aspects in the reform concerns improving pathways from VET to continuous education, attracting high performing students, transparency and flexibility with regard to entrance into VET education, and – last but not least - a quality improvement of the teachers' teaching skills and a focus on development of pedagogical leadership and implementation of a pedagogical strategy at each VET school.

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[1] https://ec.europa.eu/ploteus/search/site?f%5B0%5D=im_field_entity_type%3A97
[2] http://uvm.dk/I-fokus/~/media/UVM/Filer/I%20fokus/Tema/Faglaert%20til%20fremtiden/131002%20faglaert%20til%20fremtiden.ashx

The Danish VET schools are independent institutions governed by an overall management board, consisting of representatives from the social partners, with a managing Director as the daily leader and with a rather high amount of middle managers (20-40 at an average VET school). There is tradition for a large amount of liberty with regard to the overall management as well as with regard to the teachers' planning of school based learning activities at the individual school.

Legislative initiatives with focus on improving the pedagogical standards of teachers and leaders in VET

During the last five years there have been three legislative initiatives concerning the improvement of vocational pedagogical skills of VET-teachers and managers in order to accommodate the above mentioned challenges.

1. 2010: VET Pedagogical Diploma – All newly employed VET teachers (after 2010) must have vocational teaching qualification at EQF level 6.
2. 2013: All VET-managers must have pedagogical leadership qualifications equivalent to 10 ECTS at EQF-level 6, and every VET institution must develop a common didactic and pedagogical strategy – to raise the pedagogical coherence on institutional level.
3. 2015: All teachers employed before 2010 must have compulsory continuing professional development in VET pedagogy equivalent to 10 ECTS at EQF-level 6.

1. VET teachers' pedagogical competences

In 2010 the demands of the VET teachers' pedagogical competences were considerably raised. Then and now the VET teacher must have qualifications at initial vocational education and training level, supplemented with relevant further education in the vocational field. Additional to these demands the VET teachers must also have 5 years' relevant and recent work experience.

Until 2010 this was enough to employ a VET teacher. When he or she was employed at the VET school he or she had to pass a pedagogical course, in Danish called *Pædagogikum*[3], consisting of as well theoretical elements as elements of practical teaching performance (30 ECTS).

After 2010 the demands of pedagogical competences of the VET teachers have risen. The VET teacher – at the latest three years after employment at the VET school – must gain general knowledge at secondary school level in two or three general subjects (for instance Danish, Mathematics, Natural Science, Foreign Languages).

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[3] *Pædagogikum was equivalent to EQF level 5*

At the latest one year after employment the VET teacher must start up vocational pedagogical diploma education, and at the latest four years after employment he or she must be have passed the final test of the pedagogical diploma education.

This law is now implemented. New VET teachers take part in a diploma program, called *VET Pedagogical Diploma*.

2. VET managers' pedagogical competence development

The next step in the competence development of the Danish VET schools focuses on the management. In the legislation from 2013 an extra paragraph was added to the Main Ministerial Order describing the competences of VET teachers and VET leaders. Now it says, that[4]:

"The VET school must make a plan for competence development of the pedagogical management and be able to document that each pedagogical leader has pedagogical leader competences in an amount corresponding to 10 ECTS points at EQF level 6 within a diploma program on pedagogical management."

For many VET managers it has been new to be a leader of the *pedagogical activities of the VET school*. Traditionally the management has been focused on leading daily operations regarding economy, staff, and building administration, and not being involved in the way the teachers teach. Now there is growing recognition that the *education and the students' learning processes* – the actual core activity of a VET school – cannot be left to the teachers alone. It is necessary that the manager interferes in the school based preparation and for instance supports a learning school environment, an organization of the teachers in teacher teams, and an appreciative feedback culture between teachers and students.

The Ministry of Education has described what they mean by pedagogical leadership[5]. The pedagogical management secures:

- That the relevant members of staff continuously take part in the didactical and pedagogical development of the VET school
- That this development is carried our systematically with involvement of the newest research results regarding VET pedagogy and didactics
- That there are established room and time for the relevant members of staff to reflect on the school's pedagogical and didactical practice and given possibilities of developing this practice

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[4] The Main Ministerial Order on VET, § 12, point
5:https://www.retsinformation.dk/forms/R0710.aspx?id=164802#Kap3
6: www.**uvm**.dk/Uddannelser-og-dagtilbud/Erhvervsuddannelser/I-fokus-p...

- That the engagement and priority of the management is seen and felt clearly of as well members of staff as the students, for instance by leaders taking part in education or in the daily learning processes of the VET school
- That the school is a learning organization where the staff members' daily job performance is a possibility of learning and developing competences, and where other competence development activities, such as courses, job swop's, etc., are transferred into the daily practice of the whole school

A compulsory common didactical and pedagogical foundation at each VET college

The Main Ministerial Order of 2013 also stated a number of other quality initiatives regarding VET schools; among others, that every VET school must establish and implement a *common didactical and pedagogical strategy (CDPS)* in order to create a coherent foundation for the teaching and learning with a special focus on creating a better connection between the school part and the practical part of the VET program, - and on differentiation in education and teaching (in order to give support to the weaker students and challenge the stronger students). The CDPS is a result of a deliberate interpretation of the pedagogical and didactical challenges especially connected with the individual school. The CDPS will be different whether the school is placed in a big city or in the country; whether it is a school mainly focused on technical, commercial, social health care, or agricultural programs. The CDPS must be infused in the school based planning and in this way be a guideline for the planning, the carrying out, and the evaluation of as well VET programs as the individual teaching session. In this way the Danish Government wants to guide the pedagogical quality development of the individual school.

According to the legislation the CDPS must describe:

1. The structure of the education and learning processes and the connection between school and training in enterprises
2. The pedagogical, didactical, and methodical foundation for carrying out teaching at the VET school, including a strategy for choosing teaching and learning methods and how to improve differentiation of teaching and learning according to the students' prerequisites, potentials, and overall aims.
3. The contents of the subjects and learning activities planned by the VET school.

Seen from the political perspective the CDPS must be closely connected with the other quality work of the VET school. The words "didactic" and "pedagogical" have of course a meaning in the pedagogical context of teaching and learning. But when "strategy" is added to the terminology it is an

organizational underlining of the governmental emphasis on the fact that school management is more than economy and administration.

3. VET teachers' Continuing Professional Development (CPD)

In the revision of the law from 2015 it was added that the VET school must make a plan for competence development of the whole teaching staff[6]

"The VET school must make a plan for competence development of the whole teaching staff. The school management must - in agreement with the teachers - plan continuous professional development for as well the whole teaching staff as for the individual teacher in order to secure renewal and adaption of the teachers' competences, including supplementary experience from the world of work, among other things performed as short time traineeships in enterprises and guidance on pedagogical practice"

The Ministry of Education has allocated a considerable amount of money to each college for the teachers' continued professional development.

An obligatory school based plan for CPD

As a compulsory part of this plan all teachers employed before 2010 must have continuous professional development. Within the period 2015 – 2020 all VET teachers must have improved their vocational pedagogical competences[7].

When it comes to the content of the pedagogical competence development The Danish Ministry of Education has made an analysis of the teachers' competency needs. The Ministry has expressed clear expectation with regard to level and content of the teachers' CPD:

- All VET teachers must have VET pedagogical competences at diploma level (EQF level 6), at least lasting10 ECTS points
- The CPD must be recognized in the formal education system; that is, the CPD must be tested at a university college or at a university
- The CPD must concern pedagogical competences within the following 7 content areas:

  1. Knowledge on and focus at the students learning processes and progression
  2. Classroom management with focus on the students' learning processes

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[6] The Main Ministerial Order on VET, § 12, point 6 and 7:
https://www.retsinformation.dk/forms/R0710.aspx?id=164802#Kap3
[7] The Main Ministerial Order on VET, § 12, point 8:
https://www.retsinformation.dk/forms/R0710.aspx?id=164802#Kap3

3. Planning and carrying out differentiated teaching with a starting point in the students' needs and potentials

4. Supporting the students in creating coherence in the learning processes in the VET college as well as in the enterprise

5. Student activating methods

6. Practice related teaching

7. Pedagogical use of ICT

The Ministry of Education expects that approx. 65% of all VET teachers will need this type of CPD (approx. 5000 teachers).

The VET school management may choose between the themes and offer selected content areas for the staff (the VET teachers). The themes must be chosen according to the pedagogical strategy of the VET school.

Implementation of legislative initiatives at the Danish VET schools

Being a provider of VET pedagogical education, VET research, and consultancy service with regard to innovation and development projects at VET schools NCE is focusing on the implementation of the legislative initiatives at the VET schools. In this chapter some examples will be presented.

All initiatives are addressing the same challenge: To develop the teachers' teaching skills and to implement the improved teaching practice in the normal VET school culture and in this way make it more attractive for a larger amount of young people to choose a vocational education.

Therefore it is essential to draw an inspiration from research on successful teaching in adult and continuing education[8]. How can we ensure that what is learned is subsequently applied? Which factors enhance transfer? Following conditions are crucial (shortened):

- It is essential for transfer that the adult learner experiences a need to learn what is taught and recognizes the usefulness in relation to the work situation
- Transfer is enhanced if the learner has a clear objective regarding the application of what is taught
- And if the learner experiences or develops self-efficacy
- The learning outcome has to be ambitious yet realistic and the learner must experience progression in the learning process

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[8] Wahlgren, Bjarne, *Transfer between education and the world of work,* (Transfer mellem uddannelse og arbejde), Nationalt Center for Kompetenceudvikling, 2009

- The education must be organized in a way that ensures incorporation of elements from the workplace
- The more examples and the more varied application of the examples onto different situations the more transfer

These bullets are always in the mind of NCE, no matter if it is VET Pedagogical Diploma, school based CPD or consultancy service in connection with innovation and development projects. NCE always considers how to create links between the *work place* (at the VET school), *the learner* (the VET teachers, the VET leaders), and the *learning outcomes of the program*/module.

Providing an effective VET pedagogical Diploma to VET teachers

The VET pedagogical diploma (EQF level 6) is an in-service education (contrary to a pre-service primary teacher education). The VET pedagogical diploma (DEP) is for all VET teachers, no matter their vocational education or their university degree. The overall aim of the DEP program is for the student to gain theoretical and practical basis of teaching in vocational programmes; of taking part in innovation and development work; and to develop him/herself professionally and personally.

Approximately 1500 VET teachers have finished or are at the present studying the diploma program. The vocational pedagogical diploma program (DEP) is offered at 6 university colleges in Denmark. The largest and oldest is NCE at Metropolitan University College (MUC).

The VET schools may choose which university college they prefer as provider of the DEP diploma program. As the university college gets money per student this stimulates enhanced pedagogical considerations on how to make the best VET teacher education, - and the best VET teachers.

The program is performed in NCE with the focus on creating engaged and reflective VET teachers. The teaching is planned and carried out in a holistic interdisciplinary way, supporting the students in developing themselves as reflective practitioners.

The study consists of different study activities: a) the students take part in lessons and exercises, b) the student are organised in small study groups (discussing the literature and examples from practice; interviewing students and experienced colleagues), c) independent studies (reading relevant literature, according to learning outcome and the individual problem based assignment) and d) making assignments (all assignments consists of a written part and an oral part. The students may choose to write assignments in small groups – up to three. The written part may consist of a video and a small synopsis or may be a traditional report. All assignments are problembased and form the basis of the oral examination).

The DEP diploma is 60 ECTS, corresponding to one year's full time study[9]. In NCE the DEP is offered full time, part time, and as blended learning.

Evaluation of DEP

Recently The Danish Evaluation Institute (EVA) has made an evaluation of the VET Diploma[10]. Overall the evaluation results were positive. 81% of the VET teachers found that they could use the knowledge from the diploma education in their job as teachers. The VET teachers said they had improved their skills in motivating the students (71%), in making differentiation in their teaching (68%) and in using experiential learning methods (68%). The teachers said that they have got enhanced knowledge in pedagogy and didactics; knowledge they use in planning, carrying out and evaluating their teaching. Furthermore they have got more attention on the students' prerequisites and learning processes and have got more confidence in themselves as teachers.

1. Implementation of Pedagogical CPD for school leaders and teachers

In connection with the massive emphasis on CPD NCE has drawn on research results on implementation. In order to secure the best results it is important to make considerations on things to be done *before, during, and after* the CPD is carried out:

Before: The school makes a strategical analysis of the needs for competence development in relation to the Common Didactical Pedagogical Strategy. NCE suggests a meeting between the VET school management, representative from the teaching staff to agree on the focus and the school base planning.

During: The CPD is closely connected with the daily practice of the teachers. NCE carry out the CPD at the VET school. The daily practice of the teachers is used as a common laboratory.

After: Initiatives are taken to promote a subsequent use of the skills taught at the CPD. The schools have different approaches (for instance top-down or bottom-up), but always a CPD course is followed up by a meeting with the VET school management on how to implement the results of the CPD.

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[9] The DEP diploma consists of 6 modules, including four obligatory and two elective modules. The obligatory modules are: Module 1: Teaching and learning (obligatory) 10 ECTS, Module 2: Planning – didactic (obligatory) 10 ECTS, Module 3: Pedagogical science theory (obligatory) 5 ECTS. *Two of the following four elective modules:* Module: The VET participants (elective) 10 ECTS, Module: Development of the VET system (elective) 10 ECTS, Module: Digital technologies in VET programmes (elective) 10 ECTS, Module: Practice related teaching in VET education (elective) 10 ECTS. And a final thesis (obligatory) 15 ECTS

[10] Danmarks Evalueringsinstitut, New demands of the pedagogical competences of VET Teachers, (Nye krav til erhvervsskolelærernes pædagogiske kompetencer), 2015 Danmarks Evalueringsinstitut

An evaluation on the implementation of DEP on the Danish VET schools[11] illustrates how the VET schools consider the new demands of higher pedagogical quality, and how they interpret the implementation of this:

1. *An individual challenge*: At some VET schools the fact that the VET teacher must take part in education is seen as an individual challenge for the teacher and a problem for the work place. Example of a comment from a middle manager: *"It is a problem to make a study plan for the students when XX is taking part in a course. But luckily he will soon be back again and will be able to take his lessons"*

2. *An individual challenge – but with support from the work place*: At many VET schools the school management understands that it is a considerable challenge for the individual teacher to take part in CPD and also take part in normal job tasks at the VET school. Therefore the school offers help, consisting of introduction courses and sparring/mentoring from colleagues. Example of a comment from a middle manager: *"It I a long time ago since YY went to school. He is a good teacher and it is important that he develops new competences. Therefore we offer different sorts of support to him"*

3. *An organizational as well as an individual challenge*: Every time a teacher has made an assignment he or she is asked to present it either at big school meetings or in the teacher team in order to inspire the colleagues. An example of a comment from a middle manager: *"ZZ made an excellent report on how to work with brick layer students with dyslexia. It is very important that he shares his consideration with the rest of us. – And then we show him that we appreciate his efforts "*

4. *Strategical lift of both competence and organizational development*: When the teachers have taken part in pedagogical education the management of the school asks the teachers to present their assignments. If the assignments contain relevant analysis and a suggestion for solving a practical pedagogical challenge at the VET school (which they often do) the school management picks out one or two of the assignments, sets up a working group in order to make a plan for implementation of the teacher's suggestion at the school. Example of a comment from a middle manager: *"AA and BB have made an excellent analysis on how to improve cooperation between school and enterprise. We will make use of their considerations and ask them to be members of a working group in order to implement their suggestion to the whole VET school"*

Most of the Danish VET schools would be characterized as belonging to point one and two. But approximately one fourth of the schools belong to point three and four. This is to say that a massive

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[11] Gottlieb, Lund Rasmussen et al, Evaluation of the Implementation of the new pedagogical VET teacher education at the VET schools in Denmark, 2013,)not published)

emphasis on competence development also influences school development and implementation of a qualitative improved approach to pedagogy and didactics.

2. Innovation and development projects at Danish VET schools

The Danish Ministry of Education has taken initiative to a number of innovation and development projects (I&D projects) in order to improve the pedagogical quality of the VET schools. NCE often serves as consultants at the VET schools in connection with these I&D projects, having different roles, such as project leaders, experts, facilitators.

Pedagogical management and implementation of a common didactic and pedagogical strategy

In 2013-2014 two main projects were carried out with participation of a great number of VET-teachers and managers and with a consultancy and a research team from NCE, as an "umbrella" gathering common experience from the schools and analyzing results. The two projects were concerning "Pedagogical Management"[12] with 12 participating VET-schools and "Implementation of a Common Didactical and Pedagogical Strategy"[13] with 21 participating VET-schools.

The main experience from the project on pedagogical leadership showed that – though the schools were very different – there were certain similar themes:

- Considerations on the differences between "normal" leadership and pedagogical leadership with focus on the education and the students
- How to develop different pathways especially for gifted students
- Changed relations between leader and teachers, - a need for new management tools
- Development of a CDPS

The experience from the I&D project on implementation of CDPS showed that the VET schools used different approaches with regard to implementation. Some schools used a top-down approach, other schools used a bottom-up approach. Some schools used well-known theories as a starting point. Other schools developed their own approach. There were pro's and con's with regard to all aspects. The main purpose, though, were that the schools made experiments and gained experience for others to learn from.

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[12]
http://www.phmetropol.dk/Forskning/Skole+og+padagogik/Erhvervspadagogik+NCE/Aktuelle+projekter/2014/07/Paedagogisk+Ledelse
[13]
http://www.phmetropol.dk/Forskning/Skole+og+padagogik/Erhvervspadagogik+NCE/Aktuelle+projekter/2014/07/Generaliserbar+viden+didaktisk

Teachers in short time traineeships in enterprises

In 2014-2015 the Danish Ministry of Education initiated an "umbrella" project with the title "Teachers in short time traineeships in enterprises". 25 VET schools were making pilot projects in order to strengthen the links between school teaching and practical learning in enterprises by giving VET teachers the possibilities of having periods of in-company-training in order to develop relevant vocational teaching skills. NCE was facilitating this process and was analyzing the results from the experiences of the schools. NCE's analysis has been concentrated on answering following questions:

- Which central elements (activities, considerations, organizations etc.) are included in the systematic models used by the VET schools?
- Consider the importance of these elements when it comes to the competence development of the VET teachers
- How do the teachers and the VET school management estimate the competence development taken place by short time traineeships?

6. Conclusion

Denmark is undergoing a general upskilling of the teaching staff. The Danish Ministry of Education has created the pedagogical quality framework, and the providers – of which NCE is one – have done their best to help the VET schools in implementing the quality improvement in practice.

The importance of a good teacher has come in focus, not at least because of the influence of evidence based research made by John Hattie[14] claiming the teacher to be the most important single factor when it comes to the student's learning process. But the teacher is not an island. The Danish efforts when it comes to quality improvement of the Danish VET schools show that it is important to have focus on the teacher team and the pedagogical management as well, and subsequently the whole VET school culture.

Thus, the quality development of the VET teachers' teaching skills – together with a pedagogical upskilling of the management and the compulsory pedagogical strategy - and the implementation of these skills in VET schools are essential to the quality improvement of Danish VET.

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[14] http://www.educationalleaders.govt.nz/Pedagogy-and-assessment/Building-effective-learning-environments/Teachers-Make-a-Difference-What-is-the-Research-Evidence

Abstract til workshop-ellersymposieoplæg/template for abstract/symposium presentation NORDYRK 2016
(beskrivelse/theme *max. 300 ord/max 300 words*)

Indsendes**senest d. 5.februar 2016**til/ Please send at latest **February 5**[th]to Lisbeth Magnussen, NCE, limg@phmetropol.dk

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Abstracttitel/ Title of abstract:
Kompetensutveckling för yrkeslärare – om organisatoriskt lärande för samspel mellan skola och arbete i yrkesutbildning

Baggrundog motivation/ Background and reasons:

Vi tar utgångspunkt i ett projekt med fortbildning för yrkeslärare på gymnasienivå. Att organisera för närmare samarbete mellan skola och arbetsliv kräver kompetensutveckling med särskild design. Denna design genomförs, prövas och särskilt studeras dess effekter. Forskning visar att kompetensinsatser mest bidrar till personlig utveckling (Svensson, Brulin, Jansson och Sjöberg, 2013).

Problemformulering/ Problem definition:

Forskningsspørgsmål/Research questions: Avsikten är att ta reda på om och hur det arbetsplatsförlagda lärandet har utvecklats genom att deltagare genomgått Skolverkets apl-utbildning.

Metode – teoretisk ramme og dataindsamlingsmetode / Method - theoreticalframework and data collectionmethod:

Den metod som används i studien är innehållsanalys av ca 500 digitala enkäter

med fasta och öppna svarsalternativ. Teoretiska utgångspunkter är yrkeskunnande och lärande. Yrkeskunnande kan ses ur två aspekter; den kompetens individen besitter och de kvalifikationer som arbetet kräver. I modellen nedan lyfts de olika aspekterna av yrkeskunnande fram och relationen dem emellan.

Kompetens   Kvalifikation

Formell kompetens   Efterfrågad kompetens

Utnyttjad kompetens

Faktisk kompetens   Den kompetens som arbetet kräver

Figur 1 Begreppsmodell över relationerna mellan kompetens och kvalifikation (Ellström, 1992).

Det som efterfrågas överensstämmer sällan helt med den kompetens som faktiskt krävs för att utföra uppgiften (Ellström 1992).

Konklusioner, forventet udbytte og resultater/Conclusions, expectedoutcomeand results:

Villkoren för lärande i formell kompetensutveckling är beroende av samspelet mellan individuella faktorer och organisatoriska faktorer som verkar i en yttre kontext, vilket studien visar (Ellström, 2004; Baumgarten, 2006; Baumgarten & Sipos, 2013).

[OBS! Også i relation til det overordnede tema for NordYrk: *Fælles nordiske udfordringer for yrkesuddannelser*/Alsoin relation to the overall NordYrk-theme: *Common Nordic challenges with regard to voctionaleducation*]:

Nøgleord/Keywords (3-5): yrkeskunnande, kompetens, kvalifikation, arbetsplatslärande

Planlægger du at indsende et paper?/Do you expect to send a paper too?
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Titel på paper/ Paper title: **Kompetensutveckling för yrkeslärare; omintegrering av individuellt- och organisatoriskt lärande**

Abstract (max 300 words):
Inledning

Vi tar utgångspunkt i ett nationellt utbildningsprojekt som Skolverket driver (2013-2017) med avsikt att erbjuda kompetensutveckling för yrkeslärare på gymnasienivå för att öka kvaliteten i yrkesprogrammens arbetsplatsförlagda lärande [apl]. Syftet i studien är att beskriva effekter av ykeslärares kompetensutveckling på individuell och organisatorisk nivå. Effekter av en kompetenssatsning kan förstås utifrån relationen mellan deltagarnas, organisationens och utbildningsinsatsens villkor (Ellström, 2010).

Utbildningens design

Utbildningen är utlagd på 5 dagar under ett halvår och omfattar kurstillfällen i form av workshops. Mellan träffarna sker eget arbete i den egna verksamheten och aktivt deltagande på en digital lärplattform. Deltagarna är uppdelade i basgrupper med 6 personer i varje. I basgrupperna diskuterar, reflekterar och utbyts erfarenheter från verksamhetsarbete, litteratur och föreläsningar. Förutom kommunikation i basgruppen kan deltagarna på lärplattformen diskutera och byta erfarenheter med hela gruppen. Vid efterföljande träff följs erfarenheter från kursuppgifterna upp.

>   Kursinnehåll:
>
>   - Kvalitet i arbetsplatslärande
>
>   - Systematiskt kvalitetsarbete i apl
>
>   - Bedömning och betygsättning
>
>   - Kollektiv reflektion och kollegial handledning

Metod

I studien används en kvalitativ innehållsanalys av ca 500 digitala enkäter med fasta och öppna svarsalternativ. Deltagande i enkätstudien är frivilligt och varierar mellan lärosätena. Den totala svarsfrekvensen är ca 65%. Utöver enkätdata används empiri från deltagande observationer av kurser givna av Stockholms universitet samt från erfarenhetsutbyten i terminsvisa träffar mellan kursgivande lärosäten i landet och Skolverket.

Konklusion

Kompetensutvecklingsinsatsen har gett effekter på individuell- och organisatorisk nivå. Deltagarna har fått ökade kunskaper omapl och redskap för att höja kvaliteten. Verksamheten har involverats och stöd av kollegor och ledning i termer av tid och utrymme har skapats på flera arbetsplatser. Effekterna kan förstås utifrån hur utbildningen har riggats och att deltagarna till största delen var motiverade och intresserde. Om verksamheten präglas av ett ett utvecklingsinriktat förhållningssätt har förutsättningar skapats för ökad kvalitet i apl.

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Paper-indhold/ Content:

NB! Paper in progress, please do not quote or cite.

Bakgrund

I detta paper diskuterar vi effekter av en utbildningsinsats för yrkeslärare. Vilka effekter kan uppnås och hur kan effekterna förstås? Tidigare forskning visar att formell utbildning oftast bidrar till personlig utveckling av deltagarna, ett individuellt lärande, men att det är betydligt svårare att få till ett lärande på organisatorisk nivå. Det kan av olika skäl vara svårt för individer som deltagit i utbildning att överföra kunskapen till praktiskt handlande och förändra den verksamhet man arbetar inom (Helms Jørgensen, 2006; Svensson, Brulin, Jansson och Sjöberg, 2013).

Inom alla yrkesprogram i den svenska frivilliga 3-åriga gymnasieskolan ingår 15 veckor

arbetsplatsförlagt lärande [apl][1]. I flertal rapporter från Skolinspektionen (2011; 2013) framgår att

kvaliteten på apl inom yrkesprogrammen är skiftande. Rapporterna pekar på brister som ligger på

individuell och organisatorisk nivå. Det rör arbetsliv och skola och samarbetet dem emellan.

Stockholms universitet fick uppdraget av Skolverket[2] att genomföra en utbildning för att erbjuda

kompetensutveckling för yrkeslärare i syfte att öka kvaliteten inom apl. Utbildningens innehåll

formades tillsammans med Skolverket och verksamma yrkeslärare.Vi har som följeforskare ansvarat

för utbildningens innehåll och genomförande samt deltagit aktivt under hela utbildningens gång.

Utbildningen har tagits fram av yrkeslärare i apl-verksamhet, representanter från Skolverket och forskare

från universitetet i en interaktiv lärprocess. Deltagarna i utbildningen har aktivt prövat kursuppgifterna i

den egna verksamheten då rektorer och kolleger har involverats.De intygsgrundande utbildningarnaär

utlagda under ett halvår (en termin) på 5 dagar och omfattar fyra kurstillfällen i form av föreläsningar,

workshops, gruppdiskussioner. Mellan träffarna sker eget arbete i den egna verksamheten och aktivt

deltagande på en digital lärplattform. Deltagarna är uppdelade i basgrupper med 6 personer i varje.

Kursinnehåll:

- Kartläggning av kvalitet i apl
- Systematiskt kvalitetsarbete i apl
- Bedömning och betygsättning av elevers prestationer i apl
- Kollektiv reflektion och kollegial handledning

Metod

Metoder som används i studien är en kvalitativ innehållsanalys av ca 500 avidentifierade digitala

summativa enkäter med 18 fasta och öppna svarsalternativ som deltagare frivilligt besvarat direkt

efter kursavslut. Deltagande observationer av genomförande i 15 kursomgångar (ca 30

deltagare/kurs) och formativa utvärderingar samt terminsvisa analysmöten (hittills 7 st) med

andra kursgivande lärosäten och Skolverketutgör även underlag för tolkning och anays.

Teoretisk inramning

Vi har fokus på individuella och organisatoriska effekter efter en formell utbildningsinsats i syfte

att öka kvaliteten på apl i yrkesprogrammen. Effekter kan vara svåra att fånga eftersom det krävs

en studie över tid. De vanligaste effekterna av utbildning är att deltagare anser att de fått ökat

självförtroende och ökat yrkeskunnande, de blir motiverade för fortsatt lärande och har fått

möjlighet till psykosocial utveckling. Effekter på organisatorisk nivå kan handla om ökad kvalitet på

produkter och tjänster, ökad motivation, en "vi-anda" och att en miljö skapas som främjar

lärande(Kock, 2010). En annan fråga är hur effekterna kan bli hållbara. Om vi talar om satsningen

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[1]50 veckor apl i lärlingsutbildning
[2] National Agency of Education

som ett utvecklingsprojekt visar forskning att projekt ofta ger kortsiktiga resultat och tenderar att mattas av och försvinna när projekten avslutas.

Hållbarheten i ett utvecklingsprojekt kan förstås utifrån aktivt ägarskap, samverkan för utveckling och gemensam kunskapsbildning mellan olika aktörer, samt utvecklingsinriktat lärande som hänger samman med förmågan att hantera komplexitet, motsägelser, konflikter och dilemman (Svensson, Brulin, Jansson & Sjöberg, 2013).Ett aktivt ägarskap innebär att ledningen eller de ansvariga skapar förutsättningar i termer av resurser, styrning, uppmärksamhet etc. Att enbart fokusera individen i ett utvecklingsarbete är sällan verkningsfullt. Organisationen behöver tas med: individens omgivning och sammanhang är lika viktiga som individen. Det går inte heller att förändra organisationer och strukturer om inte individer ändras. Ett hållbart utvecklingsarbete bör således innefatta förändring både av individer och av organisation (Brulin& Svensson, 2011). Utvecklingsinriktat lärande är så en förutsättning för utveckling, ett lärande som fokuserar på förändring och innovation. Till skillnad från ett anpassningsinriktat lärande som fokuserar att utförande av givna uppgifter med bestämda mål och förutsättningar utan att ifrågasätta och förändra. Anpassningsinriktat lärande och utvecklingsinriktat lärande kan jämföras med begreppen single-loop learning och double-loop-learning (Argyris & Schön, 1995). Utgångspunkten för att få effekter på individuell och organisatorisk nivå vid en kompetensutvecklingsinsats är att den formella utbildningen behöver kopplas till fortsatt lärande på arbetsplatsen. Med andra ord, behöver individuellt lärande och organisatoriskt lärande integreras.

Vilka faktorer är viktiga för ett individuellt lärande? Vi tar avstamp i att lärande sker i samspel med individer och dess omgivning. Därmed blir individuella faktorer som motivation, tidigare kunskaper, erfarenhet av utbildning, år i yrket och kön betydelsefulla. Vidare blir utbildningens design central. Hur är utbildningen utformad till innehåll och struktur och hur genomförs den? Hur utbildningen designas kan kopplas till vuxnas lärande (Eriksson, Larsson och Sipos Zackrisson, 2009). Larsson (1996) lyfter fram följande aspekter som avgörande för livslångt lärande; utmaning, autenticitet och relevans. Vuxna behöver utmanas för att bryta invanda mönster så tolkningar och handlingar förändras. Med autenticitet avses enligt Larsson (1996) att vara eller bli genuint intresserad och att innehållet i studierna är "i kontakt med hur vi i vardagen tolkar de fenomen som studierna handlar om". Kunskapen ska i någon mening vara levande. Den ska bottna i elevers egna upplevelser och erfarenheter. Vidare är relevans ett viktigt begrepp. Kunskap lärs ofta skilt från sittsammanhang. När man inte inser i vilket sammanhang kunskapen får mening är det svårt att förstå(ibid).

Relevans handlar om att de vuxna kan skapa mening, se en slags nytta med studierna, idealt i relation till deras erfarenheter och vardagsliv (Assarsson & Sipos Zackrisson, 2006).

Utifrån ett organisatoriskt perspektiv på lärande blir faktorer kopplade till verksamheten centrala. Förutsättningar relaterade till den inre och yttre kontexten är ex ledningsstöd, möjligheter till lärande möten, kollegiestöd, verksamhetskultur, handlingsutrymme samt yttre tryck som i det studerade fallet kan vara regeringens krav via Skolverk och Skolinspektionen (Baumgarten & Sipos, 2013; Billet, 2011; Ellström, 2010).

Sammantaget kan följande analysmodell för effekter av en utbildningsinsats formas.
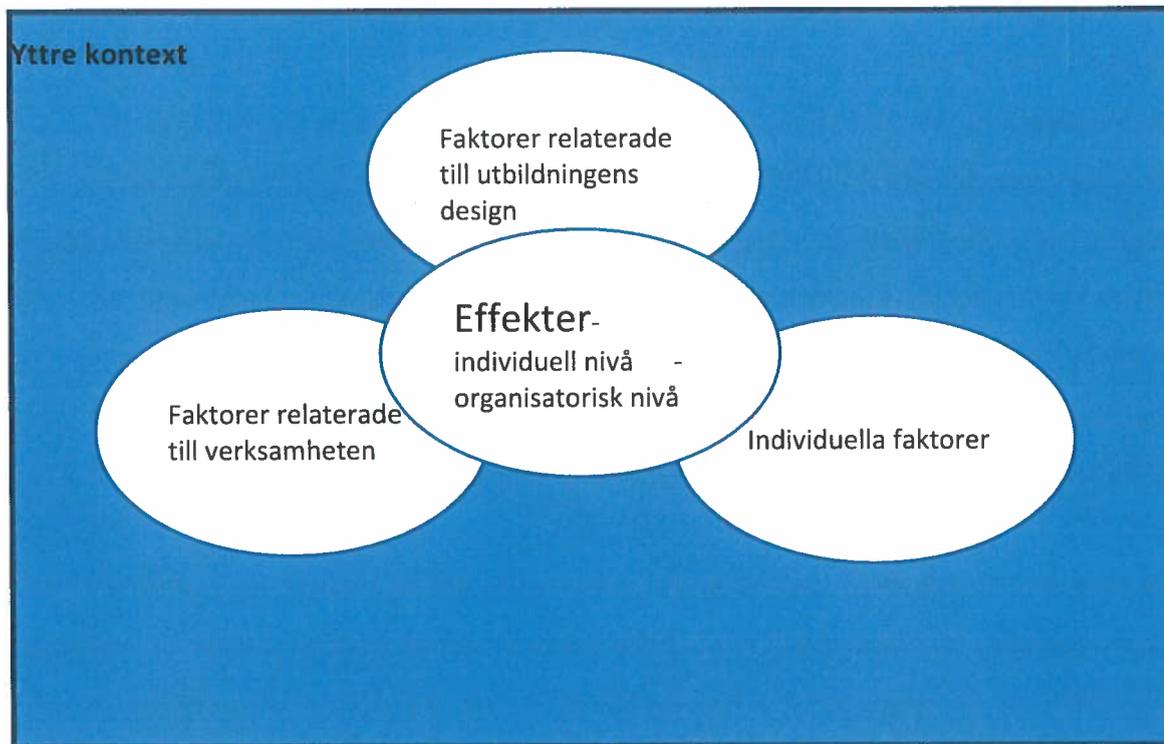
Figur 1. Analysmodell av faktorer och dess samspel som antas ha betydelse för effekter av en utbildningsinsats.

Resultat

Individuella och organisatoriska förutsättningar

De flesta (84%) har frivilligt anmält sig till utbildningen, vilket vi tolkar som en indikator på motiv och intresse. Ca 30% har fått nedsättning i sin tjänst för att delta. Hälften av lärarna har mer än 10 års erfarenhet från arbete med apu/ apl. Övervägande del (75%) av deltagarna arbetar med yrkesprogram på ungdomsgymnasium. Hälften av deltagarna upplever stöd från skolledningen,

och 40% anser att kolleger visar intresse. De flesta (80%) uppger att de kan omsätta och tillämpa kursinnehållet samt anser att utbildningen bidrar till ökad kvalitet i apl. De vanligaste förekommande yrkesprogrammen är VO, BF, Handel, HA, BY, EL.[3] Kursuppgifternas relevans bedöms som avgörande av 70 % och basgruppsarbetet värderas som central input av 65 %.

Effekter på individuell nivå av deltagande i apl-utvecklarutbildning

Många ger uttryck för att de blivit säkrare i de olika rollerna i och med att de fått mer kunskap ifråga om lagar och förordningar, och att de fått ett vetenskapligt perspektiv på apl samt att ha fått ta del av andras erfarenheter. Att kunna vrida och vända på uppgifterna tillsammans med andra har gett en vidgad och fördjupad förståelse för apl och dess förutsättningar. De uttrycker även att de fått ett helhetsperspektiv som stärker rollerna och olika ansvarsfördelning.

> Jag fått ett vidgat kvalitativt och vetenskapligt perspektiv på apl. Idag ser jag inte enbart på min roll som apl utvecklare kopplat till specifikt vård och omsorgsprogrammet, utan som implementerbart på samtliga yrkesprogram på nationell nivå.

> Känner nu att jag *är* mer apl-utvecklare än tidigare. Har en större insikt i och kunskap om vad det hela handlar om. Känner mig trygg i apl-utvecklarrollen.

> Trygghet i att kunna lagar och förordning. Behöver inte längre strida för det jag tidigare trodde var rätt. Nu läser vi bara i lagtexten. Det har på det viset hjälp till vid många kniviga elevfrågor.

> Den vidgade vyn och andras erfarenhet har varit en ögonöppnare. Även om man läst/ vet det mesta behöver förståelsen bollas med andra för att högre förståelse. Upplever att jag är mycket säkrare på vad som gäller (...). Jag har dels blivit stärkt i min yrkesroll.

> Jag har själv blivit mycket bättre på att samtala med elever och handledare ur formativt perspektiv

> Nu har jag tid i tjänsten att göra apl, med handledaren och med eleven. Det är jag som har kollen.

Effekter på organisatorisk nivå av deltagande i apl-utvecklarutbildning

Vad vi kan se är att det finns tankar och idéer om hur man ska gå vidare med apl. Alla har ännu inte hunnit operationalisera dessa men de som har genomfört förändringar har exempelvis stärkt trepartssamtalen, infört "årshjul" i det systematiska kvalitetsarbetet, reviderat handledardokument, ordnat handledarträffar, utvecklat bedömningsmatriser samt att eleverna har blivit mer involverade. En annan effekt är att de har kunnat sprida intresset för apl till

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[3]VO (vård/omsorg), BF (barn/fritid, Handel (handel), HA (hantverk), BY (bygg), EL (el).

kollegerna och rektorer, ibland även till huvudmän, något som är för tidigt att säga vilka
konsekvenser det får:

> Att vi nu har rutin och dokument för kartläggning av arbetsmiljö, rutin och dokument för bedömning
> av elevprestationer från apl/ praktik och att vi nu har klart en första handledarträff. Förståelse för och
> kunskap om apl/ praktik och dess dokument samt rutiner är nu kända hos alla yrkeslärare. Vi har även
> haft en halvdag med introduktion till övriga lärare om hur utvecklingsarbetet med YI och apl/ praktik
> fortskrider.

> Kanske lite tidigt att se något synbart resultat men helt klart har gymnasiechefen varit den som mest
> har engagerat sig i min utbildning och det gör förhoppningsvis att det kommer att påverka
> verksamheten. Även yrkeslärarträffar ser jag som kommer att påverka verksamheten framöver.

> Kartläggning, kvalitetsarbete i apl står på agendan nu.

> Matriser, bedömningsblanketterna har vi redan börjat med.

> Vi ha fått flera infallsvinklar och flera kollegor ska gå så vi gör det tillsammans

> Vi ska se över ansvarsfördelningen och våra kunnande och göra schemat.

> På skolan har vi nu ett programråd och ett flöde , vem som kommer och vad som apl ska handla om.

> Jag har mandat att jobba med apl på lokal nivå på skolan, men även på regional nivå i Stockholms län
> genom Vård och omsorgscollege Stockholm.

Sidoeffekter

Kompetenssatsningen har haft rekryterande effekt. Flera deltagare har utvecklat intresse av att
studeraoch har påbörjat yrkeslärarprogram.Universitetets medverkan har bidragit till att
kursinnehållet uppdateras i lärarutbildningen. Skolverket har blivit "kött och blod", en myndighet
bestående av riktiga människor som bidrar till att lärarna kan visa sin okunskap, men också bidra
till förslag på förändringar som aktörerna för med sig tillbaka i myndighetsverksamheten.

Resultatdiskussion

Hur kan de redovisade effekterna förstås? I denna studie antas effekterna bero på faktorer
relaterade till den erbjudna utbildningens design, den verksamhet deltagarna verkar inom samt
individuella förutsättningar. För det *första* kan konstateras att de flesta som deltagit i utbildningen
har varit intresserade och motiverade. De har själva valt att delta som kan förstås utifrån att de i

sina verksamheter har utmaningar i hur det arbetsplatsförlagda lärandet ska planeras och genomföras eller att de har en vilja eller ambition att få nya eller förändra sina arbetsuppgifter. Det kan även handla om möjligheten att göra karriär. Karriärvägar är för övrigt sparsamt förekommande inom läraryrket. Vidare har utbildningen på olika sätt satt spår i de sammanhang lärarna verkar i. Det betyder för det *andra* att de deltagande yrkeslärarna finns i en mer eller mindre öppen och tillåtande verksamhetskultur som ger möjlighet till förändring på en organisatorisk nivå. Att det finns handlingsutrymme, en stödjande ledning och kolleger och tillfällen till reflekterande möten mellan olika aktörer är faktorer som bidrar. Det kan konstateras att lärare har frihetsgrader inom verksamhetens ramar vilket underlättar utveckling. En eldsjäl kan få handlingsutrymme. Risken finns att en begränsad del utvecklas och inte större delar av verksamheten. Delaktighet bli därmed viktigt. För det *tredje* synes utbildningens design ha betydelse för effekter på både individuell och organisatorisk nivå. I en analys med andragogiska ideal av deltagarnas meningsskapande i relation till utbildningens design kan konstateras att:

- Deltagare kan använda kursen i relation till vardagligt arbete
- Deltagare kan påverka och utarbeta innehåll i relation till egna behov
- Deltagares lärande utgår från upplevda problem eller utmaningar

För det *fjärde*, ifråga om yttre kontext, har Skolverket varit en aktiv part. De har haft uppdraget från regeringen att utveckla apl. Vidare har Skolinspektionen genom tillsyn pekat på brister i apl. De har tillsammans på olika sätt utövat påtryckningar på landets skolor.

Sammanfattningsvis kan konstateras att denna utbildningssatsning som formats av skolverksamheten, myndigheten och vetenskapen har bidragit till effekter i verksamheten och på individnivå som kan ses som förutsättningar för ökad kvalitet iapl.

Metoddiskussion

Svarsfrekvensen varierar mellan olika lärosäten och är totalt låg (65%). Bortfallsanalys har ännu inte gjorts - kan det vara så att de som inte svarar, därmed inte upplever några effekter? Många anger att det är för tidigt att ställa frågor om förändringar i skolverksamheten i direkt anslutning till kursavslut. Däremot är enkätsvaren överraskande lika oavsett lärosäte. Möjligen kan det försås i relation till den färdiga kursdesign som Skolverket efterfrågar i upphandlingar. Kurser inom projktet förväntas orgniseras likartatat oavsett lärosäte. Myndigheten vittnar om att man sällan eller aldrig fått så positiv respons på en utbildningssatsning och indikatorer på förändringar i skolverksamheten. En förklaring kan vara involvering av yrkesverksamma lärare i fomandet av

kursdesignen för ökad relevans och autenticitet. En annan förklaring kan vara en inbyggd bias. De 385 skolor med 1023 lärare som hittills deltagit (finns ca 900 gymnasieskolor i landet) är redan "på banan", dvs är införstådda med reformen GY -11, men har även en inställning till förändring och lärande som medger en slags grogrund, ett inspirerande lärandeklimat?Det är trots allt enbart ca en tredjedel av alla skolor som frivilligt deltar i satsningen.För att förstå effekter av utbildninssatsningen bör vi gå vidare med att jämföra likheter och skillnader mellan olika skolor och yrkesprogram. Det är också så att vi egentligen inte kan uttala oss om satsningen lett till ökad kvalitet i apl som kommer eleverna tillgodo. Det blir nästa steg i studien; att gör intensivstudier med fältnärvaro i form av case/fall.

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Abstract til workshop-presentation NORDYRK 2016
(beskrivelse/theme *max. 300 ord/max 300 words*)

Indsendes **senest d. 5. februar 2016** til / Please send at latest **February 5th** to Lisbeth Magnussen, NCE, limg@phmetropol.dk

Navn / Name:	Institution: (navn og land/name and country):
Per Andersson, Susanne Köpsén	**Linköping University, Sweden**

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Abstracttitel / Title of abstract:

Vocational teachers' continuing professional development – a survey study

Baggrund og motivation / Background and reasons:

Teachers' subject knowledge is crucial for the quality of education. Contemporary work life changes rapidly, which challenges vocational education and training (VET) and teachers who need up-to-date vocational competence. This paper concerns VET teachers' maintenance and development of subject knowledge, i.e., their continuing professional development (CPD) related to vocational subjects.

Problemformulering / Problem definition:
Forskningsspørgsmål / Research questions:

The aim is to analyse teachers' participation in varying types of CPD activities.

Research questions:
To what extent do VET teachers participate in CPD activities?
How does participation vary between teachers from different vocational areas?
To what extent can different factors explain VET teachers' participation in CPD activities?

Metode – teoretisk ramme og dataindsamlingsmetode / Method - theoretical framework and data collection method:

The study draws on a socio-cultural perspective on practice, identity, and learning. Fundamental is the situated character of knowledge, where knowledge and skills related to vocational subjects in school are situated in specific vocational communities of practice. Furthermore, the analysis is related to theory concerning adults' participation in education, which show how situational, institutional, and dispositional factors influence teachers' participation in CPD activities.

The descriptive statistics and binary logistic regression analyses are based on survey data on participation in different activities, barriers to and momentum for participation in these activities, and perceived effects in terms of professional development. The survey was distributed through Statistics Sweden to a sample of 2,000 Swedish VET teachers (from a population of about 9,850). Statistics Sweden supplemented survey data with register data on background before the anonymized data were analysed.

Konklusioner, forventet udbytte og resultater / Conclusions, expected outcome and results:
[OBS! Også i relation til det overordnede tema for NordYrk: *Fælles nordiske udfordringer for yrkesuddannelser* / Also in relation to the overall NordYrk-theme: *Common Nordic*

challenges with regard to voctional education]:

Results show how Swedish VET teachers meet competence challenges through participation in the analysed activities. Patterns of participation are similar between vocational areas, but there are some significant differences between the areas. Further, the variation in vocational areas does not have that much influence on the variation concerning if teachers participate or not. There are other variables having higher influence, but what have influence varies between activities.

Nøgleord / Keywords (3-5):

Vocational teachers, continuing professional development, participation, vocational areas, variation

Planlægger du at indsende et paper? / Do you expect to send a paper too?

Yes

Vocational teachers' continuing professional development – a survey study

Paper to NORDYRK 2016

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Titel på paper / Paper title: Vocational teachers' continuing professional development – a survey study	
Abstract: Teachers' subject knowledge is crucial for the quality of education. Contemporary work life changes rapidly, which challenges vocational education and training (VET) and teachers who need up-to-date vocational competence. This paper concerns VET teachers' continuing professional development (CPD) related to vocational subjects and basic vocations in which they teach. The aim is to analyse teachers' participation in varying types of CPD activities. The study draws on a socio-cultural perspective on practice, identity, and learning. Furthermore, the analysis is related to theory concerning adults' participation in education, which shows how different factors influence participation in CPD. A survey was distributed to 2,000 Swedish VET teachers. The analyses are based on data on participation in different activities, barriers/drivers for participation in these activities, and perceived effects in terms of professional development. Results show similar patterns of participation between vocational areas, but with some significant differences between the areas. The variation in vocational areas does not have that much influence on participation. Reading vocational texts is the most common activity among those covered in the study. To read, and to work in the teacher's basic vocation, are the two activities where variation in doing them could be explained to the highest degree.	
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Introduction

Teachers' subject knowledge is crucial for the quality of education. According to vocational education (VET) and vocational (VET) teachers the subject knowledge is related to work life experience and competence within a specific vocational area. This basis for qualification means certain conditions for VET teachers to maintain being knowledgeable in their teaching subject, i.e., conditions for continuing professional development. Referring to socio-cultural theory we consider being competent in relation to a vocational subject as having a vocational identity, which means to have all the knowledge and skills to proficiently practice the vocation in a way that meets current expectations. Furthermore, we consider vocational teachers' competence based on dual professionalism, as a vocational teacher needs to have teaching competence as well as competence related to a specific vocational practice of their 'basic' vocation, that is, drawing on socio-cultural perspective (Lave & Wenger, 1991) having a vocational identity as well as a teacher identity (Fejes & Köpsén, 2014). However, work life changes rapidly, which challenges VET and VET teachers, who need to update their vocational identity to be knowledgeable in relation to their vocational subject. This paper concerns VET teachers' continuing professional development (CPD) related to their vocational subjects and, thus, it focuses the vocational identity. However, we are aware of that a person's different identities and competence are intertwined and based on the person's multimembership in various socio-cultures (Wenger, 1998; Wenger-Trayner et al., 2015), and thus, the teacher identity also has to be regarded according the VET teacher's CPD.

Continuing professional development is according to Day and Sachs (2004) 'a term used to describe all the activities in which teachers engage during the course of a career which are designed to enhance their work'. However, they point out that this is a simplified description of a complex phenomenon where a lot of different factors. In an overview of purposes, forms and processes of the meaning of CPD for teachers Bolam and McMahan (2004) conclude there has been a substantial change the last decades. New methods and approaches have emerged, focus has widened (e.g. as it takes account of school culture and work-based learning as well as personal development) and thus the understanding of the whole process of CPD. We consider CPD as a term for all VET teachers' intentional activities that in a sense develop knowledge and expertise related to their vocational identity and vocational subject. In this paper we analyse VET teachers' participation in varying types of CPD activities. Furthermore, we consider the conditions for participation in CPD by analysing whether there are individual and system-level factors that may explain their participation.

The study in this paper concerns Swedish VET teachers at upper secondary level – for young people and in municipal adult education. Swedish VET is organised into 12 national three-year programmes, which are regulated by a curriculum. An alternative pathway of apprenticeship complements the ordinary programmes that normally include 15 weeks of students' placements in working life. The study includes VET teachers who teach in the vocational courses, i.e. not those teaching general subjects. Normally, VET teachers have experience from the vocation in which they teach, i.e. they have a vocational identity related to their teaching subjects, and they also have studied in a VET programme equivalent to the one in which they teach. Most Swedish VET teachers have full-time, or nearly full-time positions. Today there are no formal teaching degree requirements for this group of teachers. However, many VET teachers have a teaching degree as they have participated in a part-time teacher programme while working as a VET teacher.

Research concerning CPD for VET teachers is limited (see de Rooij in Parssons et al., 2009, p. 92). Even so the lack of research there is some relevant to our study. Lloyd and Paine (2012) show that conditions of employment have an impact on the vocational teachers' opportunities to maintain the professional knowledge and skills related to their vocational area. Having a part-time teacher position means possibility to keep on working in the occupation related to the vocational subject. Established structures and managements' support are other conditions that have shown to influence the vocational teachers' possibilities and motivations to cross the boundaries between the practice of school and practice of work-life (Frisk, 2014; Opetushallitus, 2014). Such formal offers of CPD could also be seen as recognition of the dual professionalism of vocational teachers and their special needs and demands of CPD. Fejes and Köpsén (2014) found in a small-scale study that

Swedish VET teacher did not maintain an up-to-date vocational identity. The importance of VET teachers' participation in their former occupational practice to retain their vocational identity was found. However, various constraints were found for such participation. To get to know more of Swedish VET teachers' CPD further research has been conducted. A new Swedish national initiative of CPD for vocational teachers, which provides them the opportunity to participate in the vocational, work-life community of practice of their teaching subject for some weeks have been investigated (Andersson & Köpsén, 2015; Köpsén & Andersson, 2015). It is indicated that vocational area and the geographical region in which the VET teachers work are conditions that influence the VET teachers' participation. Further, the geographical factor is also the strongest predictor for recurrent participation in the initiative, with the lowest likelihood in low populated municipalities. On the other hand, recurrent participation is more common among teachers from adult education and privately owned schools, and among male teachers.

These studies of VET teachers' participation in the national initiative raised new questions and a survey study of the teachers' CPD was initiated. The aim of this paper is to analyse teachers' participation in varying types of CPD activities based on data from this survey:

- To what extent do VET teachers participate in CPD activities?
- How does participation vary between different vocational areas?
- To what extent can different factors explain participation in CPD activities?

Methods

The analysis is based on survey data on vocational teachers' participation in CPD, operationalized in eight different types of activities, as well as on the perceived effects of these activities among the teachers and perceived drivers or barriers for participation. The survey was distributed by Statistics Sweden to a sample of 2,000 Swedish teachers on upper secondary level. After two reminders, we had received 982 answers, and among these 886 are included in the results, while the rest are overlay. After correction for the overlay, this means that the response rate was 47%.

The survey data were supplemented with register data on teachers' background. Register data employed include information on sex, educational training, length of teaching experience, type of school, type of employment, degree of employment as teacher, and the type of municipality where the teacher is active. Further, background data collected in the survey were also included, concerning the vocational areas of teaching, and the length of experience from the basic vocation.

The dependent variables in the analyses are participation in eight different types of CPD activities. These activities concerns teachers' vocational subject knowledge, firstly in terms of boundary crossings between school and work life, secondly as formal or informal studying/learning activities targeting this subject knowledge, and thirdly in the development of how this knowledge is dealt with in their teaching. The activities are:

Relations to work life through:
- *Work* in a work place or your own business.
- *Study visits* at work places.
- Coordination of *students' placements* or apprenticeship.

Vocational learning through:
- Participation in *industry arrangements* as conferences, courses etc.
- *Studying* at university level, in formal adult education etc.
- *Reading* trade-related books, journals or magazines.

Development activities:
- *Projects*, e.g. together with industry representatives.
- *Pedagogical improvement* of cases, models, training stations etc.

In the survey, we asked if and how often the teachers had done these activities the last two years, and from the answers we constructed a variable that described if they had done the activity at least every year (for Reading every semester), or more rarely. The indexes for perceived effects and

barriers/drivers were constructed through grouping of fourteen items into six indexes. The indexes cover perceived effects on the teachers' own *vocational knowledge* and skills, their *teaching*, and their *networks* in the industry, and *institutional*, *situational*, and *dispositional* barriers/drivers.

The survey and register data employed in the analysis contain information on 886 vocational teachers, 437 women and 449 men. The explorative analyses firstly include descriptive statistics, where significant differences have been identified through a chi-square test applied as a test of independence of distributions. Secondly, binary logistic regression analyses are presented to identify the relative influence of the different categories of the variables, while controlling for the effects of other variables. Here the results are presented as adjusted odds ratios, i.e. the likelihood of participation in one category, as compared to a reference-category. As this is an exploratory study, we have included even indications of weak significance (+ indicates p<0.1) in the presentation of results. The motivation for this is that such differences could be of interest for further analysis, even if they do not turn out to be significant (p<0.05) in the present study.

Results

In this section we will first present a description of to what degree VET teachers from different vocational areas participate in the varying CPD activities. Then follows binary logistic regression analyses identifying the unique influences of the different variables on participation in each activity.

Participation in CPD activities – variation between vocational areas

The degree of participation in CPD, as operationalized in eight different types of activities, varies between these activities as well as between teachers from different vocational areas (table 1).

Table 1. Participation (%) in different types of CPD activiities at least every year (every semester for Reading) among teachers from the six vocational areas.

Vocational area	Relations to work life through:			Vocational learning through:			Development activities:		
	Work	Study visits	Students' placements	Industry arrange-ments	Studying	Reading (semester)	Projects	Pedagogical improve-ment	N Valid cases
Service	59.7	89.2	78.7	57.4 +	24.2	83.4	42.5	58.3 **	153-157
Technology	48.0 ***	82.0 +	76.4	49.0 ***	17.7 +	73.6 *	34.5 *	69.3	147-150
Construction	62.4	90.5	87.4 +	79.6 ***	20.9	73.6 +	48.4	79.6 *	86-95
Vehicles	67.9	82.4	77.1	66.7	19.3	78.3	34.5	75.9	83-85
Care	49.9 ***	83.2	86.0 +	59.9	25.5	87.0 *	45.7	68.5	140-146
Practical-Aesthetical	75.9 ***	88.9	80.3	76.1 ***	25.8	83.9	51.6 **	65.8	186-191
All	60.2	86.3	80.8	64.0	22.8	80.6	43.1	68.2	776-797

Significant differences in participation in each type of activity among teachers teaching in each vocational area compared to other teachers identified through chi-square tests are indicated: ***p<.001; **p<.01; *p<.05; +p<0.1

The results show that Reading is the most common activity, so common that we changed the comparison from doing at least every year to doing at least every semester. Further, the most common activity of those where we look at participating/doing at least every year is Study visits, and the least common is Studying.

There are a number of significant differences between teachers from varying vocational areas, particularly concerning Work and Industry arrangements with highly significant differences (p<0.001). Both are more common among teachers from the practical-aesthetical area and less common among teachers in the technology area. Work is also less common in the area of care and Industry arrangements is more common in the construction area. Furthermore, technology teachers also have a significantly lower participation rate for Reading and Development projects, while Practical-Aesthetical teachers have a significantly higher participation in Development projects.

There are also some indications of a weak significance (p<0.1) in that teachers in technology arrange less Study visits and do less own Studying, teachers in construction and care do more work with Students' placements, teachers in service participate less in Industry arrangements, and teachers in construction are Reading less.

The likelihood of doing/participating in different activities

In the second part of the results, we are identifying what factors have an influence on doing/participating in the different activities when controlling for the influence of other factors. The results of the logistic regression analyses are presented in terms of adjusted odds ratios. In the models applied in the regression analyses, we have included variables that had a significant influence on at least one of the activities. The exception is vocational areas that were excluded from the models, even if there was one, but only one, of the six areas that had a significant influence on one of the activities. Hereafter, sex turned out to have no significant influence in the remaining models, and therefore this variable was also omitted.

Table 2. Logistic regressions in reference to doing different types of CPD activities at least every year (every semester for Reading) among Swedish vocational teachers.

	Relations to work life through:			Vocational learning through:			Development activities:	
	Work	Study visits	Students' placements	Industry arrangements	Studying	Reading (semester)	Projects	Pedagogical improvement
	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Perceived effects								
Vocational knowledge	1.51 *	0.96	0.93	1.22	0.84	1.04	1.62 *	1.35
Teaching	1.12	1.57 +	1.29	1.04	1.52 *	2.04 ***	0.98	1.62 **
Networks	1.46	1.01	1.42	1.10	1.23	0.91	1.07	0.67 *
Barriers/drivers								
Institutional	0.80 +	1.18	1.49 **	0.94	1.31 +	0.91	1.16	1.33 +
Situational	1.26 *	0.89	0.72	1.18	0.97	1.25	1.42 *	0.80
Dispositional	1.33 *	1.08	1.42 +	1.17	1.03	1.47 *	0.88	1.34 +
Teacher training (Ref. No)								
Teaching degree	0.95	0.51 *	0.75	0.70	0.45 ***	0.97	0.80	0.89
Other	1.25	0.60	0.68	0.41 **	0.87	1.14	1.52	0.82
Teaching experience (Ref. ≥8 years)								
≤3 years	2.28 **	0.49 *	1.16	1.14	1.14	0.93	1.44	1.54
4-7 years	1.74 **	0.94	1.26	1.44 +	0.93	0.99	1.36	1.20
Work experience (Ref. ≥8 years)								
≤3 years	0.45 **	0.52 +	0.96	0.48 **	0.82	0.79	0.90	0.63
4-7 years	0.53 **	0.65	0.70	0.82	1.00	0.41 ***	0.98	0.80
Type of education (Ref. Adult ed.)								
Upper secondary school	1.64 +	1.20	0.80	0.64	0.89	0.89	1.11	0.47 *
Employment status (Ref. Fixed-term)								
Permanent	1.37	0.98	1.86 *	1.45	0.95	1.00	0.88	1.53
Degree of employment (Ref. 100%)								
< 50%	2.08 *	0.99	0.77	1.81 *	1.10	2.26 *	0.55 *	0.68
50-75%	1.20	0.98	0.67	1.22	1.09	1.48	0.62	0.67
76-99%	0.82	1.08	1.40	1.05	1.52	2.64 *	0.78	0.97
Municipality type (Ref. 3 large city areas)								
Other large city areas	1.51 +	1.38	1.20	0.84	0.83	0.97	0.73	0.98
Low-populated municipalities	1.60	3.73 *	1.40	1.02	0.90	0.64	0.93	0.76
Highly populated municipalities	1.11	1.57	1.76	0.88	0.90	1.35	0.47 **	1.29
n	686	706	649	686	652	693	642	629
Chi-square	89.8	31.1	51.5	48.2	41.9	74.1	60.1	58.0
P	***	+	***	***	**	***	***	***
Nagelkerke R²	0.167	0.082	0.133	0.094	0.093	0.166	0.119	0.127
Correctly classified cases %	67.5	87.8	84.7	66.0	75.9	82.7	63.1	73.3

Df =20. Significant odds ratios are indicated: ***$p<.001$; **$p<.01$; *$p<.05$; +$p<0.1$

The models (table 2) explain some of the variation in participation in the difference activities. The best models are those for the activities Work and Reading. There are a number of variables/categories that have a significant influence on teachers' work in their basic vocation, and particularly there is influence from the length of the experience as a teacher as well as from the basic vocation, where a shorter teaching experience and a longer work experience mean more work in the basic vocation now. Further, the influence of the perceived effect on the vocational knowledge is reasonable, as well as the influence of the degree of employment as a teacher (more time for other work with a lower degree of teaching). We can also see that the situational and dispositional factors have a significant influence here.

The factors that have an influence on Reading are somewhat contradictory and more difficult to interpret. Teachers with the lowest, and the close to full-time, degree of employment, are most likely to read vocational texts. Among the drivers, the dispositional factor has a significant

influence on reading. The influence of the length of work experience from the basic vocation means that those teachers with the longest experience read most. However, the significant difference is between teachers with the longest experience and those with a medium-long experience. Further, the significant influence of perceived effects concerns the effects on teaching.

Some other activities show a comparably high degree of explanation. Work with Students' placements is influenced particularly by the institutional drivers, but there is also a weak indication of an influence by dispositional factors. Further, the teacher's type of employment have a significant influence – permanently employed teachers are more likely to do this type of work task. Doing Pedagogical improvement also shows a rather high degree of explanation. The most significant influence is from the perceived effect on teaching, which seems reasonable. There is also a negative influence from a perceived effect on networks – the focus in the items included in this index was the network in the vocational area, and pedagogical improvement is probably something that is seen as school-related and conducted internally at the school. As a comparison, we can see – even if the influences are not significant – that Work in the basic vocation and arranging Students' placements, activities closely related to the work-places and the vocational communities, show the highest positive odds ratios on this factor. Finally, concerning Pedagogical improvement, we can see that this activity is more common among teachers in adult education, compared to upper secondary school, and that there is a weak significance for the institutional and dispositional drivers. We can also see some interesting influences on doing Development projects. The activity was described in the survey as doing such projects together with industry representatives, and here we can see a significant influence of the perceived effect on vocational knowledge. There is also significant positive influence from the situational factor, and a negative influence from a low degree of employment as a teacher. We can also note that there is a negative influence on doing development projects among teachers from highly populated municipalities.

Concerning the remaining activities, we can see that teachers with a lower employment degree as teachers, teachers with a longer experience from the basic vocation, and teachers without educational training, participate in Industry arrangements to a higher degree – in all cases indicating that teachers who are still closer to the industry are more likely to participate. The activity of Studying seems to have been interpreted as not only studying related to the basic vocation but also to the teaching vocation. The highly significant influence from already having a teacher training on non-participation in studying indicates this, as well as the positive influence from the perceived effect on teaching. Finally, the significance for the model concerning arranging Study visits is low, but one significant factor could be mentioned: teachers in low-populated municipalities seem to be much more likely to arrange study visits.

Discussion

There are more or less significant differences in participation between the vocational areas. However, the logistic regression analyses show that there are other variables that explain participation to the extent that there is almost no significant influence from the vocational area.

CPD activities as boundary crossing

There are some interesting patterns when it comes to doing different activities, in relation to what we understand as boundary crossings between the community of practice of school and of the teacher's basic vocation. The variation in participation in the different communities could also explain the variation in emphasising the different sides of the VET teacher's double identity identified by Fejes and Köpsén (2014). The results clearly show that it is more likely that teachers who still have a legitimate membership (Lave & Wenger, 1991) in the community of the basic vocation also do work there, parallel to the work as a teacher. Particularly, we can see that a shorter teaching experience, and a longer experience from the basic vocation, can explain a higher degree of Work.

Most vocational teachers has a background in the basic vocation they teach, and a shorter teaching experience could mean that they recently left the basic vocation – making work in that

vocational community more likely. On the other hand, shorter experience from the basic vocation means that it is less likely to return and do work there – a shorter period of experience could mean a less developed vocational identity, making it less likely to return to that work community.

Further, not surprisingly, teachers with a lower degree of employment as teachers do Work in the basic vocation to a higher degree (cf. Lloyd & Paine, 2012). This factor, the teachers' degree of employment, constitutes a condition for them to cross the boundary between the two communities of practice regularly and combine the teacher vocation with their basic vocation. This is an example of the system-level factors that influence VET teachers' CPD (Bolam & McMahan, 2004).

Reading – the most common activity

Concerning the most common activity, Reading, this seems to be a way to be enough up-to-date for teaching, but not for the vocational knowledge *per se* – where the teachers most likely also include their actual skills in the latter. This is an example of CPD activity that is not necessarily conducted in the community of vocational practice but will contribute to the development of knowledge related to the vocational subject (cf. Wenger-Trayner et al., 2015). The pattern identified in the descriptive results with more reading among teachers with just below full time teacher employment, and those with less than 50 % employment, is significant even in the regression analysis. The interpretation of the descriptive results still seems reasonable, particularly when the influence of the perceived effect on teaching is identified in the model – teachers who do not work full time have time for reading to keep themselves up-to-date, and teachers who work less than 50 % as teachers are probably working also in the basic vocation and have to be up-to-date for that reason too. The influence of the dispositional factor on reading is also reasonable, as compared to the non-significant influence of the institutional and situational factors – reading could be done rather independent of conditions in the institution or life situation. The influence of the length of work experience from the basic vocation on Reading also indicates that teachers with longer experience are closer to their old vocation – reading to be up-to-date in the vocation seems as a reasonable way of keeping the connection. However, why the significant difference is between teachers with the longest experience and those with a medium-long experience remains to be understood.

Different conditions in different municipalities?

There are some patterns that are worth to mention concerning the geographical dimension. We can see a negative influence on doing development projects among teachers from highly populated municipalities. Are there institutional conditions in these municipalities that could explain such influence? Are the networks with industry representatives weaker here than in other municipalities? On the other hand, that teachers in low-populated municipalities seem to be more likely to arrange study visits is an indication of an importance of networks and close connections to the industry – and it could be more likely to have such connections in a small town than in a large city. These conditions call for a holistic view on VET teachers' CPD activities (cf. Day & Sachs, 2004).

Further research

For a broader picture of vocational teachers' CPD, it will be valuable to build on more extensive descriptions of their own experiences. A qualitative interview study is also the next step in the bigger project in which the present study is one part. The interview study is expected to result in a deeper understanding of in what ways the professional development in relation to the basic vocation is or is not part of the professional life of vocational teachers.