VET teachers' beliefs on collaboration, identity, and status and their relationship with professional development

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Abstract

We investigate how Norwegian vocational education and training (VET) teachers' beliefs on collaboration and sharing knowledge influences their intention to participate in continuing professional development (CPD). As these teachers cross a border between two professions, changing the context influencing their professional identity, we also investigate their perceptions of their professional identity and status. Regression analyses on data from 125 VET teachers in the south of Norway show that beliefs regarding collaboration and sharing knowledge significantly contribute to the intention to participate into CPD to strengthen general pedagogical competence and strengthening knowledge on the teachers' subject taught. The latter is also influenced by the extent to which the teachers perceive themselves more as a skilled worker than a teacher. Our results align with previous research on the relevance of teachers' beliefs for CPD. They furthermore show that professional identity plays a role as well in VET teachers' intentions regarding CPD.

Keywords: VET teachers, professional identity, professional development, collaboration

1 Introduction

In 2015, in line with policies in other European countries (European Union, 2016; OECD, 2010), the Norwegian ministry of education and research (Kunnskapsdepartementet) published their strategy to strengthen vocational education and training (VET) teachers' competences. This strategy had a specific focus on collaboration (e.g., between the educational institution and government, or between teachers at the campus and in internships; Kunnskapsdepartementet, 2015). At the same time, the ministry requested more research-based knowledge about what kind of skills and competencies VET teachers themselves would like to improve. Understanding the specific needs teachers themselves express and including them in the development process are important steps in the planning of professional development (Bound, 2011; Geldenhuys & Oosterhuizen, 2015). Related to this strategy, the ministry called for research on and postgraduate courses for VET teachers on pedagogical topics. They aimed to encourage universities to investigate these teachers' needs and wishes regarding their continuous professional development (CPD) as well as to develop relevant postgraduate courses.

This study is part of a larger project at the University of Agder in Southern Norway in response to the ministry's request. We expand the request and, where others have investigated VET teachers' needs and wishes (e.g., Aamodt, Carlsten, Caspersen, Grøgaard, & Røsdag, 2016; Aspøy, Skinnarland, & Tønder, 2017; Caspersen, Michelsen, & Wendelborg, 2016), take an adjacent approach. Offered CPD courses may fit teachers' needs and wishes, but the question remains whether they will participate when these courses are offered. Teachers' beliefs are relevant for their intention to participate in CPD (e.g., Desimone, 2009; De Vries, Jansen, & van de Grift, 2013). By investigating VET teachers' beliefs and their relation to these teachers' intent to participate in CPD, we contribute to the limited attention paid to the professional development of VET teachers (Dymock & Tyler, 2018).

Professional development activities are most effective when colleagues can learn together within a culture of learning and support, including networks and collaboration

(Van Veen, Zwart, Meirink, & Verloop, 2010; Villegas-Reimers, 2003). Hence, it is essential that possibilities for learning communities and cooperation are created within the organisation. Professional development and learning in professional communities can contribute to a change in teachers' beliefs about cooperation, because sharing knowledge initiates a rethinking of own beliefs and behaviour (Fussangel, 2008). Participating in such networks and school cultures requires that ideas, thoughts, and reflections are shared and that teachers recognize and value this possibility of sharing knowledge. If not, teachers may lose interest in taking part and thus resist professional development in school. Thus, VET teachers' beliefs on collaboration and sharing knowledge with colleagues may influence these teachers' intentions towards participating in CPD. VET teachers' beliefs about their professional identity may also be influential. Research has shown that beliefs about one's professional identity can influence various variables. Professional identity has, for example, been related to motivation for work (Popescu, Bulei, & Mihalcioiu, 2014) and student retention (Worthington, Salamonson, Weaver, & Cleary, 2013). A study among Dutch early career teachers showed that tensions related to these teachers' professional identity influence the affective appraisal of and behavioural responses to their work (Van der Wal, Oolbekkink-Marchand, Schaap, & Meijer, 2019). Here, we investigate to what extent VET teachers' intention to participate in CPD might also be influenced by these teachers' beliefs about their professional identity. Lastly, VET teachers' beliefs about the status and social recognition of their work are included in our study, as CPD is an aspect that makes teaching a profession (Villegas-Reimers, 2003; Messner & Reusser, 2000). Although being a practical profession, teaching practice is and should be founded on theory and reflection (Hammerness & Klette, 2015; Villegas-Reimers, 2003). If VET teachers believe their work is perceived as a profession, they might also feel the responsibility of keeping themselves up to date and be more willing to participate in CPD activities.

In the present study, we explore to what extent VET teachers' beliefs about a) collaboration and sharing knowledge, b) their professional identity, and c) status as a VET teacher influence their intention to participate in CPD activities. We specify these activities as being aimed at strengthening a) pedagogical competence, b) knowledge about their specific subject (e.g., carpentry, construction), and c) status.

2 Theoretical background

2.1 Teachers' professional development

The education and professional development of teachers have a positive impact on learners' learning outcomes and results (e.g., Blank & De Las Alas, 2009; Egert, Fukkink, & Eckhardt, 2018; Shea, Sandholtz, & Shanahan, 2018). Egert et al. (2018) concluded, in their meta-analysis, that already in early childhood education and care (ECEC), in-service training of ECEC professionals has a positive impact on the development of children. Specifically, they suggest in-service training should last between 45 and 60 hours and include a significant amount of time for individual coaching. Blank and De Las Alas (2009) also observed a positive effect on pupils' learning in their meta-analysis on the effects of professional development of math teachers in K-12 schools. They concluded that effective professional development programs included emphasis on both subject content and pedagogical content, included support from mentors and colleagues in school, and often lasted six months or more.

Although positive effects of professional development have been observed in ECEC and general school settings, less attention has been paid to the education and professional development of VET teachers, both in research as well as in policy (Dymock & Tyler, 2018; Tran & Le, 2018). In their report on the professional development of Dutch VET teachers, Brouwer, Westerhuis, and Cox (2016) underline the fact that the policy

agenda of the Dutch government focuses mainly on the professional development of general teachers. VET teachers' professional development is hardly considered. A large national reform project in Sweden that focused on VET teachers' professional development to ensure the linkage between that what students are taught and students' experiences when entering working-life (Andersson & Köpsén, 2018) disregarded teachers' teaching skills. This reform focused on the professional development of VET teachers' skills in their original profession (e.g., carpenter or plumber) instead of also including professional development as a teacher (Andersson & Köpsén, 2018; Köpsén & Andersson, 2017).

In Western Australia, a professional development program aiming at "extending the instructional repertoire and expertise of tertiary vocational teachers" ran from 2005-2008 (Saunders, 2014, pp.168-169). Saunders (2014) followed 27 of the VET teachers in this program using questionnaires, interviews, and observational data. The participants had implemented the practices they learned about in the program in their instruction and at high levels of use, e.g., refining the practices. The explanation for the positive results was connected to the relevance of the program for participants' needs and contexts (Saunders, 2014). One aspect which has been shown to be relevant for VET teachers' work and needs is collaboration and sharing knowledge with colleagues (Aspøy et al., 2017; Caspersen et al., 2016).

2.2 Collaboration and sharing knowledge
Teachers can effectively learn from their colleagues, for example when it comes to learning about teaching practice (Horn, 2010; Liou et al., 2017; López Solé, Civís Zaragoza, & Díaz-Gibson, 2018). Yet, using a pre-test post-test design investigating 1858 teachers, Doyle, Sonnert, and Sadler (2018) did not observe a significant effect of collaboration with colleagues in the same domain on teachers' subject matter knowledge or knowledge of student misconceptions. Still, Shea et al. (2018), using a randomized control trial design, compared the results of schools

with and without school-level collaboration as part of a professional development program for teachers of English learners. They found larger increases in all students' test scores in schools that implemented the school-wide program, i.e., they were sharing more information from and were talking more about their professional development (Shea et al., 2018). Earlier, a meta-analysis by Blank and De Las Alas (2009) showed that professional development of math and science teachers has a significant effect on students' achievements. Support of colleagues was mentioned in this report as an aspect of effective professional development.

A literature review by Van Veen, Zwart, and Meirink (2012) on the effectiveness of teachers' professional development places collaboration with colleagues under the more innovative forms of professional development, compared to "traditional" professional development which is located outside the workplace and where teachers have a more passive role. Vangrieken, Meredith, Packer, and Kyndt (2017), based on their systematic review of empirical research on teacher communities, came to a similar conclusion. Yet, they underline the importance of developing these communities "bottom-up", ideally being initiated by teachers themselves and fitting the needs of these teachers (Vangrieken et al., 2017). For example, professional learning communities, where knowledge on effective classroom practices is shared often amongst the whole teaching staff, have been shown to support collaborative decision-making and student achievement (e.g., DuFour, Eaker, & DuFour, 2005; Lomos, Hofman, & Bosker, 2011).

Based on TALIS 2013 data and follow-up interviews with teachers and school leaders, Aamodt et al. (2016) mapped the similarities and differences between Norwegian VET teachers and regular teachers regarding their needs for and participation in CPD. The VET-teacher reported having better systems for sharing knowledge than regular teachers. The authors concluded that the VET-teachers often use forms of collaboration that resemble work teams in a company rather than cooperation in a school. Yet, in an explorative

mixed-method study with 50 VET-teachers and principals participating in professional development activities, Dalehefte, Ringereide, and Eiken (in preparation) found that the sharing of knowledge often happens by coincidence and that organized cooperation within schools is rare. Other studies from Norway support the findings by Aamodt et al. (2016) that VET teachers feel a need to share their knowledge and experiences with other teachers (Aspøy et al., 2017; Caspersen et al., 2016). Nevertheless, it is unclear how this influences their intention to participate in CPD activities.

2.3 VET-teacher's identity

VET teachers are a special group of teachers as they originally worked in different professional contexts than an educational context. This is important as it is the interplay between a person and his/her context which contributes to the construction and development of a professional identity (Andersson, Hellgren, & Köpsén, 2018; Ashforth & Schinoff, 2016; Canrinus, Helms-Lorenz, Beijaard, Buitink, & Hofman, 2011; 2012). Still, a continuing discussion of how to operationalize professional identity remains.

In 1995, Beijaard introduced a first step to understanding teachers' professional identity and presented teachers' prior experiences and actual perception of their professional identity in storylines. In these storylines, attention was paid to the subject the teacher taught, his/her relationship with pupils, and the teachers' role/role conception. In the next step, Beijaard, Verloop, and Vermunt (2000) distinguished three types of teachers in their study: the subject matter expert, the pedagogical expert, and the didactical expert. The review study by Beijaard, Meijer, and Verloop (2004) identified research into teachers' professional identity as "an emerging research area" (p. 125), but also that the reviewed studies were lacking a clear definition of professional identity. After this, others have attempted to formulate a clear definition of professional identity (e.g., Akkerman & Meijer, 2010; Canrinus, 2011; Izadinia, 2013). Hanna, Oostdam, Severiens,

and Zijlstra (2019), providing an overview of components of professional identity as specified in quantitative measurement instruments, report on six main domains of teacher identity: self-image, self-efficacy, commitment, motivation, task-perception, and job-satisfaction. Nevertheless, consensus is still lacking in defining teachers' professional identity, and the question remains whether these definitions apply to VET teachers, but agreement exists about the need to include both the personal and professional dimension when investigating professional identity (Beijaard, 2009). Therefore, it is even more important to understand VET teachers' professional identity, considering the specific background experiences they often bring to their teaching and the specific additional tasks and roles they may take up (Broad, 2016; Vähäsantanen & Hämäläinen, 2019). Here, we investigate VET teachers' professional identity by focusing on the degree to which they identify with their two professions.

VET teachers have "crossed the boundary" between two different professions (Andersson et al., 2018; Fejes & Köpsén, 2014), from, for example, being a carpenter to becoming a teacher. In that sense, they operate in a "dual practice field", consisting of their initial profession and the teaching profession (Aspøy et al., 2017). OECD (2014) even encourages educational institutions offering VET to ensure that their workforce has a strong blend of academic knowledge, experience in practice, and pedagogical skills. In the same report, OECD suggests that VET teachers should work part-time in both contexts, i.e., teaching and industry. Through boundary-crossing, exchange of knowledge from and between the various contexts is made possible. Having experience from both contexts makes that a VET teacher can function as a "broker" when translating vocational, mainly tacit knowledge into explicit curricular knowledge and vice versa for their students (Broad, 2016).

The process of crossing boundaries is perceived as filled with learning opportunities and possibilities (cf. Bakker & Akkerman, 2019). One mechanism in the boundary-

crossing processes is "identification" (Akkerman & Bakker, 2011; Bakker & Akkerman, 2019). In the process of identification, "the core identity of each of the intersecting sites" is questioned (Akkerman & Bakker, 2011; p. 142). As a result, new insights may emerge about previously separate roles and practices. Some findings indicate that the identification process proceeds gradually (e.g., Grzanna, 2011), yet Van Rijswijk, Akkerman, Schaap, and Van Tartwijk, (2016) showed that within teacher education numerous students also experience a discontinuity in their perceptions of themselves throughout their teacher education program. According to Ashforth and Schinoff (2016), new employees entering an organisation engage in sensemaking to construe an identity they believe is appropriate and integrates their past and present experiences. In a recursive process of, amongst others, social validation from colleagues, the new employee then further develops and enacts his/her identity. Izadinia (2015), for example, showed that the relationship between mentor teachers and preservice students is influential for the shaping of these students' professional identity. Furthermore, Nesje, Canrinus, and Strype (2018) showed that contextual factors during their internship influenced student teachers' identity development. Nesje et al. (2018) suggested that these students should be better prepared for the context by acknowledging the various aspects of a teacher's work already in the teacher education program. Regarding VET teachers, little is known about to which degree they identify with their two professions and how this might influence their intention to participate in CPD.

2.4 Status and social recognition of VET-teachers

A recent European study investigated the public opinion on VET within the EU (Cedefop, 2017). Based on the results from 35,646 inhabitants from 28 member states in the EU, Cedefop concluded that VET in Europe generally has a positive image related to providing job opportunities and preparation

for work. Still, there was a large variation between the countries in the number of respondents replying that VET has a positive image. Russo, Serafani, and Ranieri (2019) showed that the general attitude towards VET is positively influenced when the quality of the learning environment is good, when VET connects to actual practice, and when respondents have previous experiences with VET. Unfortunately, Russo et al. (2019) also report that people with a VET background experience that they occupy a lower position on the social ladder, potentially eroding positive attitudes towards VET. In the Cedefop study, overall, most respondents agreed that general education has a more positive image than VET and 75% of the respondents agreed that pupils with low grades are directed towards VET (Cedefop, 2017).

The status of VET, or its position relative to other forms of education or professions, is still ambiguous and there is still a lack of social recognition of VET as a profession (Grollmann & Rauner, 2007). Although policy and research have acknowledged the fact that (VET) teachers are professionals, this is still debated by others (Dymock & Tyler, 2018). Derrick (2013) argued, for example, that debates about teacher development should not include discussions about professionalism but focus on analysing practice and on 'practitioner learning'. Rasmussen (2016), on the other hand, made recommendations to ensure the further professionalization of the field, including recommendations on setting learning and teaching standards and including CPD. Robson, Bailey, and Larkin (2004) underlined that VET teachers' previous experiences before becoming a teacher gives them expertise and credibility in their new role as a teacher. Boldrini, Sappa, and Aprea (2019) interviewed 37 VET teachers in Switzerland about the difficulties and resources these teachers perceive in their profession. The teachers perceived VET tracks as having low status and perceived their profession as having poor social recognition. A similar situation exists in Norway, where VET teachers struggle with a lack of professional

pride (Bødtker-Lund, Hansen, Haaland, & Vagle, 2017). How this lack of professional pride and how the perceived status and social recognition of being a VET teacher is linked to VET teachers' intent to participate in CPD is still an open question.

2.5 The educational context in Norway

In Norway, children enter compulsory education when they are 6 years old. They attend primary school until the age of 12. After this, pupils attend 3 years of lower secondary education. These 10 years of education are a legal right as well as compulsory. A total of 92% of 16-18-year-old pupils are enrolled in upper secondary education (SSB, 2019). Upper secondary education in Norway is divided into two types of programs: 1) General study programs and 2) vocational programs. In the vocational programs, pupils attend two years in school and one or two years in apprenticeship training or three years in school (SSB 2019). There are eight different vocational programs.

Even though many pupils participate in VET education, many choose to qualify for higher education/university. Norwegian politicians have made an effort to emphasize the need for vocational competence and the value of vocational education (NOU, 2018), yet, it seems that the educational system still suffers from the lack of professional pride and vocational identity when it comes to VET (Bødtker-Lund et al., 2017). Norway currently focuses on increasing the status of and the number of pupils in vocational education to meet future needs for qualified workers in vocational fields. At the same time, the Ministry of education and research emphasizes enhancing the quality in the education of vocational teachers (Kunnskapsdepartementet, 2015). Unfortunately, too many VET teachers lack relevant vocational experience (i.e. certificates of apprenticeship) and/or pedagogical and didactical knowledge. Thus, there is a need for educating VET teachers.

There are mainly two ways of becoming a vocational teacher in Norway. Firstly, most future VET teachers follow a one-year program combining vocational subjects, pedagogy, didactics within vocational education, and internships. Teacher candidates in this program have either at least a bachelor's degree and two years of practical experience or have obtained their certificate of apprenticeship or journeyman's certificate, have at least two years of tertiary education, and four years of practical experience. The second option to become a VET teacher in Norway is a three-year program for those candidates who have obtained their certificate of apprenticeship or journeyman's certificate and have two years of practical experience after their education. This program aims at both establishing a broad understanding of the profession as a vocational teacher but also in-depth knowledge about didactics in specific vocational programs. This program offers candidates without a technical vocational education or vocational theoretical courses the necessary skills to teach in VET programs (Kunnskapsdepartementet, 2015). Since it leads to a bachelor's degree, this study also qualifies for master level studies. Although OECD (2014) suggested VET teachers to work in both fields (i.e. education and as a skilled worker), there is no policy in Norway related to this. Some VET teachers may indeed hold two part-time positions, others may have a full position as teacher.

3 Method

3.1 Participants

The study was permitted by The Norwegian Centre for Research Data (NSD) which protects the privacy and rights of research participants. All 199 VET teachers in the Southern two states of Norway teaching in the first two years of upper secondary education in public schools in the programs Electricity and Electronics, Building and Construction, and Technical and Industrial Production, were asked to participate in this study. These programs were selected as these are subjects the Ministry of education and research requested more knowledge about. Teachers teaching these topics participate, compared to their colleagues in the other programs, to a limited extent in CPD (Aamodt et al., 2016; Kunnskapsdepartementet, 2015). As most

VET teachers in the included programs were male and as we collected data per school, we decided not to ask the teachers about their gender to ensure anonymity. In total, 125 teachers (62.8%) completed our survey. The largest group of teachers was 51-65 years old (52.8%, n = 67) followed by the group of teachers aged 36-50 years (36.8%, n = 46). Regarding experience as a teacher, most teachers (29.6%, n = 37) had up to 5 years of experience followed by 6-11 years of experience (28%, n = 36).

3.2 Instruments

The items used in and developed for this larger survey were inspired by the survey developed by Aspøy et al. (2017) and the TALIS study (OECD, 2013). VET teachers could indicate on a four-point Likert scale (0 = completely disagree – 3 = completely agree) the extent to which they agreed with statements related to their intention to participate in CPD activities if they could a) gain more general pedagogical competence – 4 items, b) improve their subject (e.g., carpentry, electronics) – 4 items, and c) obtain a higher status as a teacher – 2 items. The three scales had satisfactory internal consistencies ranging from α = .80 for general pedagogical competence to α = .72 for improving their subject (see Table 1 for an example item for each scale).

Secondly, we included two scales related to the teachers' perception of professional identity deriving from their twofold background and their status. This was of particular interest in this study because the dual background distinguishes VET-teachers from other teachers and might be relevant for how VET teachers think and act. The first scale, identity, consists of three items asking VET teachers whether they perceived themselves more as a teacher or more as a skilled worker (3 items, α = .73). A higher score on this scale implies that the VET teacher perceives him-/herself more as a skilled worker. The second scale asks the teachers about how they perceive their status as a VET teacher (3 items, α = .74). A higher score on this scale indicates that being a VET teacher is perceived as having a lower status

compared to other teachers. Again, these items were scored on a four-point scale (0 = completely disagree – 3 = completely agree).

Lastly, we included the teachers' agreement with statements on learning with and from colleagues, for example by sharing knowledge and experiences. This scale, which we named "collaboration and sharing", consists of 5 items and had an acceptable internal consistency (α = .75).

3.3 Analyses

First, we conducted descriptive analyses. Next, we performed three linear regression analyses with 1) collaboration and sharing, 2) identity, and 3) status and salary as a VET teacher as independent variables. General pedagogical competence, improving subject, and status were the dependent variables. A Kruskal-Wallis tests revealed no significant differences between age-groups, nor experience-groups. Therefore, we did not control for age and experience as a teacher in the linear regression analyses.

4 Results

4.1 Descriptive findings

The VET teachers in our sample are positive towards sharing knowledge and learning from others, as the mean score of 2.33 (sd = .47) on the scale collaboration and sharing shows (see Table 1). The mean score on the scale identity (M = 1.37, sd = .68) reveals that the teachers perceive themselves "a little bit of both", i.e., both as a skilled worker and as a teacher. The mean score on the scale perceived status is only .85 (sd = .69), indicating that the teachers in our sample do not perceive to have a lower status than other teachers.

The VET teachers are most likely to participate in CPD activities when these activities will contribute to developing their general pedagogical competences (M = 2.57, sd = .45), followed by activities which will strengthen their competences related to their subject (M = 2.33, sd = .51). Participating in CPD because of a potential improvement in status seems to be less important (M = 1.84, sd = .83).

Table 1
Mean, internal consistency, and example items of the scales used

	1	2	3	4	5	6	Mean (sd)	Internal consistency (α)	Example item
CPD intentions General pedagogical competence		.61**	.32**	.43**	-.07	-.19*	2.57 (.45)	.80	I will participate in CPD activities if I can develop myself as a teacher.
Improving subject			.37**	.20*	.28**	-.19*	1.84 (.83)	.77[a]	I will participate in CPD activities if I can obtain more knowledge on my subject.
Higher status and salary				.04	-.02	.05	2.33 (.51)	.72	I will participate in CPD activities if I can obtain a higher status as a teacher.
Beliefs Collaboration and sharing					-.14	-.18*	2.33 (.47)	.75	Sharing knowledge and experiences with other VET teachers can contribute to becoming a better teacher.
Identity						.01	1.37 (.68)	.73	My professional identity is connected stronger to being a skilled worker than being a teacher.
Status							.85 (.69)	.74	I believe I, as a VET teacher, have a lower status than teachers teaching general subjects.

[a] As this scale consists of two items, we calculated the Spearman-Brown coefficient as indicator for the internal consistency of the items (cf. Eisinga, ten Grotenhuis, & Pelzer, 2013).

* p<.05

** p<.01

Intent to participate in CPD activities regarding general pedagogical competence shows a significant correlation of medium strength with intent to participate in CPD activities to improve one's subject knowledge (r = .61, p < .01) and a significant, weak correlation with CPD for higher status and salary (r=.32, p< .01; see Table 1). The strongest significant correlation between the predictors and the intent to participate in CPD activities scales is observed between intent to participate in CPD activities regarding general pedagogical competence and collaboration and sharing (r = .43, p < .01). The correlation between collaboration and sharing and status is negative and significant (r = -.18, p < .05) and there is no significant relationship between identity and

status ($r = .01$, $p > .05$). Interestingly, the correlation between participating in CPD activities to obtain higher status and salary was not significantly correlated to VET teachers' perception of their status.

4.2 Important aspects of participating in CPD activities

Beliefs regarding collaboration and sharing contribute to a highly significant degree to the intention to participate in CPD to strengthen general pedagogical competence ($\beta = .41$, $p < .01$; see Table 2). However, the scales related to professional identity and to status as a VET-teacher do not significantly contribute in this case. Our model explains nearly a fifth of the variance of this intention (adjusted R^2 = .18).

When participating in CPD to strengthen one's subject is the outcome measure, both collaboration and sharing and identity significantly contribute to this intention ($\beta = .21$ and $\beta = .31$ respectively, both $p < .01$). Status as a VET-teacher does not contribute to the VET teachers' intention to participate in CPD to improve competencies related to their subject. Our model explains 13% of the variance (adjusted $R^2 = .13$).

Furthermore, we find that neither collaboration and sharing, nor professional identity, nor the perceived status as a VET-teacher play a role in participating in CPD

activities to gain higher status. The model explains no variance in this case (adjusted $R^2 = -.02$)

These findings imply that the extent to which VET teachers believe they can learn from and share knowledge with their colleagues could potentially strengthen their intention to participate in CPD concerning both their general pedagogical competence and their subject. Our findings furthermore show that professional identity plays a role as well in CPD. The extent to which VET teachers perceive themselves as a skilled worker instead of as a teacher is positively related to their intent to participate in CPD related to improving or strengthening their subject. Teachers' professional identity and their beliefs about learning from and sharing with colleagues did not contribute to the teachers' intention to participate in CPD to increase status or salary. Teachers' perception of the status of a VET teacher did not significantly impact the teachers' intention to participate in CPD activities.

5 Discussion

We have investigated how VET teachers' beliefs on collaboration and sharing knowledge with colleagues and their beliefs about their professional identity and status

Table 2
Linear regression of collaboration and sharing, identity, and status on intention to participate in CPD

	General pedagogical competence			Improving subject			Higher status and salary		
	B	SE B	β	B	SE B	β	B	SE B	β
Constant	1.75***	.23		1.59***	.27		1.61	.47**	
Collaboration and sharing	.39	.08	.41***	.23	.09	.21**	.08	.17	.05
Identity	-.01	.05	-.02	.23	.06	.31**	-.02	.11	.06
Status	-.07	.05	-.11	-.11	.06	-.15	.07	.11	.06
F	9.57***			7.15***			.19		
R^2	.20			.15			.01		
Adjusted R^2	.18			.13			-.02		

*p<.05 ** p<.01 ***p<.001

may influence these teachers' intention to participate in CPD. VET teachers are a special group of teachers as they cross the boundary between two different professions, in the sense of being a skilled worker and a teacher (Fejes & Köpsén, 2014). Our findings revealed that these teachers perceive themselves as both skilled worker *and* teacher. This is a positive outcome, as Fejes and Köpsén (2014) concluded that VET teachers who balanced their identity as a teacher and as a skilled worker by continuing to participate in both contexts seemed best prepared to teach their subject. Possibly the teachers continuously cross the professional boundaries in their networks, thus connecting the two contexts and functioning as a broker (Broad, 2016).

This boundary-position has also been formulated in more unfavourable terms. Tanggaard (2007), for example, referred to the identity of apprentices in Danish vocational education as 'people who sort of belong and sort of don't' (p.460). Bakker and Akkerman (2019) mention the sense of ambiguity potentially experienced due to conflicting practices and responsibilities in the different contexts on each side of the "border". Understanding where a VET teacher positions him-/herself is important as our findings furthermore show that this sense of identity impacts VET teachers' intention to participate in CPD regarding their subject. Imposing professional development on one's subject on VET teachers might be little effective when the VET teacher perceives him-/herself more as a teacher, possibly with the perception of needing more pedagogical development. Still, we did not find the factor identity to impact our VET teachers' intention to participate in CPD focused on gaining more general pedagogical competence. Identity beliefs were, on the other hand, related to intention to participate in CPD focused on the subject. A first possible explanation for this might lay in the broadness of VET offered to pupils whereas VET teachers previously might have focused on a specific aspect of their job when working as a skilled worker. As such they might want to expand their own knowledge about their subject to be able to teach about all the various aspects of their field. A second explanation could be related to aiming to validate an identity as a skilled worker by choosing specifically CPD related to one's subject as people tend to aim to validate their identity (cf. Pratt, Rockmann, & Kaufman, 2006).

Whereas identity only was of influence on VET teachers' intention to participate in CPD focused on their subject, beliefs on collaboration and sharing knowledge with colleagues influenced our VET teachers' intention to participate in both CPD focused on their subject, as well as CPD focused on gaining more general pedagogical competence. In line with other studies (Aamodt et al., 2016; Aspøy et al., 2017; Caspersen et al. 2016), our study shows the positive stance Norwegian VET teachers hold towards sharing their knowledge and experience with their colleagues. Considering the calls for a stronger professional culture (Guthrie, 2010) and more consensus regarding what professionalism entails within VET (Köpsén, 2014), this positive stance towards sharing can be perceived as encouraging and should be looked after to ensure it is maintained.

Previous studies have shown that VET teachers feel a need to share their knowledge and experience (e.g., Aamodt et al., 2016; Aspøy et al., 2017). This supports our findings of a positive stance towards collaboration and knowledge sharing. This may also hint that these teachers feel that others may value and could learn from their knowledge and experience and thus partly explain the low score on perceiving to have a low status as a VET teacher. The perception of not having a low status contradicts previous findings and statements in different settings (e.g., Boldrini et al., 2019; Grollman & Rauner, 2007). This may also explain the low score on the intent to participate in CPD to strengthen one's status and why the status was not a significant predictor of intent to participate in CPD.

Our results show that although many studies exist that investigate the impact of professional development programs on

teachers' beliefs (e.g., Chaaban, 2017; Kleickmann, Tröbst, Jonen, Vehmeyer, &, Möller, 2016), this should not be perceived as a one-way process. In our study, and in line with other studies (e.g., Desimone, 2009; De Vries et al., 2013), teachers' beliefs were relevant for their intention to participate in CPD. Beliefs are fairly stable and hard to change (Borko & Putnam, 1996; Stipek, Givvin, Salmon, & MacGyvers, 2001), thus important to take into account when developing and suggesting professional development activities (Fussangel, 2008). As such, VET teachers should be included in the development of professional development activities, to voice their beliefs and ideas (cf. Bound, 2011; Geldenhuys & Oosterhuizen, 2015).

The teachers in our sample scored high on their intention to participate in CPD related to general pedagogical competences as well as related to their subject. This shows the importance of including both aspects of professional development for VET teachers. Sweden decided in their reform in 2011 to focus on strengthening the connection between school and practice and therefore to support the professional development of VET teachers regarding their subject (Andersson & Köpsén, 2018; Köpsén & Andersson, 2017). Based on our data, we believe it would be of value to include CPD related to general pedagogical competences as well when designing CPD activities for VET teachers. Our study has shown that there is a strong willingness to participate in these, particularly when the VET teachers believe that sharing experiences and knowledge will help them in improving their teaching. Our findings may also reflect the fact that many VET teachers in Norway teach in a preliminary position without having a formal teacher education due to a lack of teachers in particular subject areas (Kunnskapsdepartementet, 2016). This is also the case in many other countries (e.g., Sweden; Skoleverket, ReferNet Sweden, 2016; the Netherlands; Brouwer et al., 2016). School leaders in Norway have also underlined that they feel the main focus of professional development for VET teachers should be on strengthening VET teachers'

pedagogical competences (Gjerustad & Waagene, 2015).

Thus, based on our findings we suggest that teacher education and development programs for VET teachers should specifically consider creating an arena for sharing knowledge and experiences. Ideally, this should be done in collaboration with the teachers enrolled (cf. Vangrieken et al., 2017). and while acknowledging the potential impact of the balancing of the boundary-crossing process of VET teachers. Professional identity is both a product and a process (cf. Van Rijswijk et al., 2016), thus the impact of a VET teachers' professional identity on their intention to participate might fluctuate over time. Related to the content of professional development programs, content related to both subject and general pedagogical knowledge should be included and again, the balance between them should be found in dialogue with the teachers enrolled to ensure their continuing participation and development.

5.1 Limitations and further research

This study has shed light on aspects influencing VET teachers' intention to participate in CPD, a still understudied field of research (Dymock & Tyler, 2018; Tran & Le, 2018). Still, the findings we have presented should be understood in light of their limitations. OECD (2010) pointed out that cross-country comparisons in this field of VET were hard to make. This statement is also reflected in the Cedefop (2017) study in Europe, where large differences between countries were observed. Our sample consists of VET teachers, located in the south of Norway and from 3 of the 8 existing VET programs. As our findings align with the mapping by Aamodt et al. (2016) and Aspøy et al. (2017) who surveyed VET teachers across the whole of Norway and from all VET programs offered, we believe our findings are representative for Norwegian VET teachers. We also suggest that beliefs about collaboration and professional identity could be perceived as universal aspects of VET teachers' work. All VET teachers, regardless of their location, will have a "dual

practice field" (Aspøy et al., 2017) and will collaborate with various colleagues. As such, we believe our findings can be used as a point of departure for other scholars in other contexts studying VET teachers' professional identity and beliefs. Further research could replicate this study with a larger sample and with samples from various countries to investigate whether our observed connection between beliefs and CPD are truly universal.

A second limitation to our study relates to our measure of professional identity. We have used a rather crude measure, placing perceiving oneself as a teacher on one end of the spectrum and perceiving oneself as a skilled worker on the other end. Vähäsantanen and Hämäläinen (2019) have recently shown that VET teachers' activities entail more than only their subject and teaching. Professional duties outside the school or developmental work as part of their teaching are examples of these activities. These additional activities create potential tensions as the VET teachers are asked to perform tasks beyond their original professional skills and interest (Pillen, Beijaard, & den Brok, 2013; Vähäsantanen & Hämäläinen, 2019). Whereas other teachers may have the opportunity to try out their future or potential professional identity, including experiencing possible tensions, before actually entering the teaching profession (cf. Nesje et al., 2018), many VET teachers are put in front of a classroom before they are fully educated as a teacher (Aamodt et al., 2016). In Norway, this is partly due to a large shortage of VET teachers (Kunnskapsdepartementet, 2016), although it should be noted that this shortage is acute in other countries as well (e.g., Sweden; Skoleverket, ReferNet Sweden, 2016; the Netherlands; Brouwer et al., 2016). Based on their findings, Vähäsantanen and Hämäläinen (2019) call for more support and arenas for professional identity work for VET teachers. Yet, we would like to call for further investigation of VET teachers' professional identity, to find common ground to understand these teachers' sense of their professional identity. As a group, VET teachers do not yet have a clear sense of what their professional identity entails (Maurice-Takerei, 2015) nor

does a clear notion exists on professionalism (Köpsén, 2014) contrary to other professions, for example in social- and healthcare, where regulations and codes of conduct have been in place for long (cf. Finnerty, 2012; Willetts, 2013).

Finally, this study has focused on how beliefs impact VET teachers' intention to participate in CPD activities. These teachers' intention does not necessarily imply actual behaviour and we should be careful to conclude that these teachers will participate in CPD. The difference between people's intention and actual behaviour is known under various names, such as attitude-behaviour gap, the intention-behaviour gap (Godin, Conner, & Sheeran, 2005), or the belief-behaviour gap (Kollmuss & Agyeman, 2002). We have shed light on how beliefs about collaboration and knowledge sharing, beliefs about professional identity and about status influences VET teachers' intentions. Additional variables may impact these teachers' intentions as well. Beliefs about the impact of the CPD might for instance also be of influence (cf. Liou, Canrinus, & Daly, 2019). Future research could broaden the perspective on potentially influential factors to get a more holistic view on predictors of VET teachers' participation in CPD.

6 Conclusion

Previously, the focus on research and policy development has mainly been on the professional development of teachers in general education. Considering the increasing need for skilled workers in the near future and ensuring that these skilled workers obtain an education of the highest possible quality, more focus should be directed towards the teachers who teach these skilled workers. Many countries in Europe have taken (first) steps to improve the status of VET as well as the professional development of teachers within VET. Although we used a crude measure for professional identity, our study contributes to the knowledge base on the beliefs and professional identity of VET teachers and underlines the relevance of

paying attention to VET teachers' beliefs and professional identity when investigating professional development in this field.

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Nederlandstalige Samenvatting

De opvattingen van leraren in het beroepsonderwijs over samenwerking, identiteit en status en hun relatie met professionele ontwikkeling

In 2015 riep het Noorse ministerie van onderwijs en onderzoek op tot meer wetenshappelijke kennis over de wensen van leraren in het beroepsonderwijs met betrekking tot professionele ontwikkeling. Hier onderzoeken we hoe de opvattingen van deze leraren over samenwerking en kennisdeling met collega's hun intentie tot deelname aan individuele professionele ontwikkeling beïnvloeden. Omdat docenten in het beroepsonderwijs een grens zijn overgaan tussen twee beroepen, vakarbeider en docent, en als zodanig de context veranderen die hun professionele identiteit beïnvloedt, onderzoeken we ook hoe de professionele identiteit van invloed is op hun intentie tot deelname aan professionele ontwikkeling. Regressieanalyses van data van 125 docenten in het zuiden van Noorwegen laten zien dat positieve overtuigingen met betrekking tot samenwerking en kennisdeling met collega's een significante positieve bijdrage leveren aan de intentie tot deelname aan professionale ontwikkeling in het vak waarin men onderwijst. Ook de mate waarin de leraren zichzelf meer ervaren als een vakarbeider dan als een leraar is hierop van invloed. Dit sluit aan bij eerder onderzoek naar de relevantie van overtuigingen van leerkrachten

voor hun professionele ontwikkeling. Dit toont bovendien dat professionele identiteit ook een rol speelt in de intenties van leraren in het beroepsonderwijs met betrekking tot professionele ontwikkeling.

Kernwoorden: leraren beroepsonderwijs, professionele identiteit, professionele ontwikkeling, samenwerking