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What Competences Do VET Teachers in Germany Really Need? A Work- and Organization Psychology Perspective

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Abstract

Context: Vocational Education and Training (VET) teachers face increasingly complex challenges, driven by rapid technological advancements and evolving educational demands. Traditional teacher education programs often focus primarily on pedagogical skills and subject-specific expertise but fail to fully address the broader, real-world contexts in which VET teachers operate. This gap between training and practice results in a mismatch between teachers' competences and the actual job requirements they encounter. To bridge this gap, there is a need to investigate the specific competences required by VET teachers that go beyond occupation or subject specific knowledge and traditional teaching tasks.

Approach: This study employs a deductive approach grounded in Action Regulation Theory to analyze the work characteristics and contexts that shape the competences required for effective VET teaching and tasks linked to that work. Using objective work analysis tools, we examined 18 VET teaching positions in Mecklenburg-Western Pomerania, Germany, focusing on both the range of tasks teachers perform and the conditions under which these tasks are carried out. The explorative study shows how varying contextual factors, such as organizational structures and work conditions, influence the competences required for VET teachers to manage their

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roles effectively. By examining these relationships, the study aims to develop a more accurate understanding of the competences needed to navigate the diverse challenges faced by VET teachers.

Findings: The analysis revealed that VET teachers require a broad set of competences, including multitasking, clear communication, empathy, decision-making, and other organizational skills. These competences are essential for managing tasks such as lesson preparation, participation in examination boards, and addressing pupils' personal challenges. Moreover, the study highlighted how context-specific factors—such as classroom behavior, pupil diversity, and organizational conditions—significantly influence the required competences. The findings underscore the importance of these context-dependent competences, which are often overlooked in traditional teacher training programs.

Conclusions: Our findings suggest that teacher education programs should place greater emphasis on context-specific competences, in addition to occupation or subject specific and pedagogical knowledge. By integrating context-sensitive competences into training programs, institutions can better prepare VET teachers to meet the diverse demands of their profession while also promoting their long-term well-being. This study offers valuable insights for improving both the quality of vocational education and the sustainability of teaching careers, particularly in rapidly evolving educational environments.

Keywords: VET Teacher, Competences, Action Regulation Theory, Work Analysis, Context-Specific Competences, Germany, Vocational Education and Training

1 Introduction

The professional landscape of Vocational Education and Training (VET) is undergoing rapid changes driven by technological advancements and demographic trends. VET teachers must not only stay up to date with the latest occupation or subject specific knowledge, but they are also expected to manage a wide range of tasks that extend beyond traditional teaching (Kalisch & Kaiser, 2019; Organization for Economic Co-operation and Development [OECD], 2021).

Initial vocational education and training (VET) in Germany takes place in a variety of schools and programs. The well-known dual apprenticeship system offers part-time programs in vocational schools and predominantly work-based learning in companies. In this context, VET teachers are expected to teach in a way that is field-oriented and closely related to the tasks of the occupations for which apprentices are being trained. This requires contextualizing subject matter to work situations and collaborating with companies (Gessler, 2017) and other teachers within the same program to create a coherent curriculum.

VET teachers can also work in upper secondary schools with a broader vocational focus (vocational gymnasiums), where pupils are prepared for university education (though not part of our study), or in transition for pupils who have not passed their exams after 9th grade, or who face social or learning challenges, thus unable to secure an apprenticeship contract (Siecke, 2008). In these cases, the educational goals of VET teachers differ significantly from those mentioned above. The curriculum, the teaching methods, and the focus on "pastoral care", alongside the ability to motivate and engage pupils, are key in these settings. Despite the wide range of VET teaching contexts, all these educators undergo the same initial training, typically based on master's level programs at universities, which focus on two subjects: One related to the occupational fields and branches, and the other often related to general education at upper secondary level (Bauer, 2007; Kalisch & Kaiser, 2019). However, these varying roles and educational contexts raise important questions: What competences do VET teachers really need in their daily work? Given the diverse demands of these teaching environments, it becomes clear that a closer examination of the specific skills and knowledge required for successful VET teaching is essential.

These tasks, which include planning, conflict resolution, and adapting to new technologies, are accompanied by increasing psychological and physical pressures. To ensure that VET teachers remain effective and healthy in their roles, it is crucial to identify the competences that allow them to navigate these challenges without compromising their well-being.

2 Theoretical Background

Current models of teacher competence tend to focus predominantly on pedagogical skills and subject-specific expertise (cf. KMK, 2004; Schulgesetz für das Land Mecklenburg-Vorpommern – SchulG M-V [School Act for the State of Mecklenburg-Vorpommern], 2010). However, these models often overlook the full complexity of the teaching profession, where teachers face significant organizational, emotional, and psychological pressures. This disconnection between theoretical competence models and the practical realities of VET teaching can lead to stress, burnout, and higher turnover rates in the profession (cf. Smith, 2023). Therefore, there is a pressing need for an additional approach that derives necessary competences directly from the specific work characteristics and contexts teachers face, rather than focusing on how they perform these tasks, providing a more accurate reflection of their professional demands.

This study employs a deductive approach grounded in Action Regulation Theory (Hacker & Sachse, 2014), a framework that analyzes how work tasks and contexts define the competences required for effective performance. According to this theory, the characteristics of work – such as levels of autonomy and decision-making requirements – determine the psychological and cognitive skills needed for successful and sustainable job performance

(Hacker & Sachse, 2014; Harvey & Wilson, 2000; LaPolice et al., 2008; Richter & Hacker, 2017). These characteristics determine for instance, the extent to which one must organize their own workday, the necessity for quick task execution, the frequency and intensity of cooperation and communication, as well as whether tasks involve independently developing content or implementing predefined material in a structured manner. The theory assumes that if the necessary skills are present, these challenges can be managed successfully and in an energy-conserving manner. By focusing on the empirical relationships between work characteristics and required competences, this approach offers a practical and systematic way to identify the competences VET teachers need to remain effective and maintain their well-being (cf. Zacher & Frese, 2018). Figure 1 illustrates the relationship between work order, work characteristics, and required competences within the Action Regulation Theory framework.

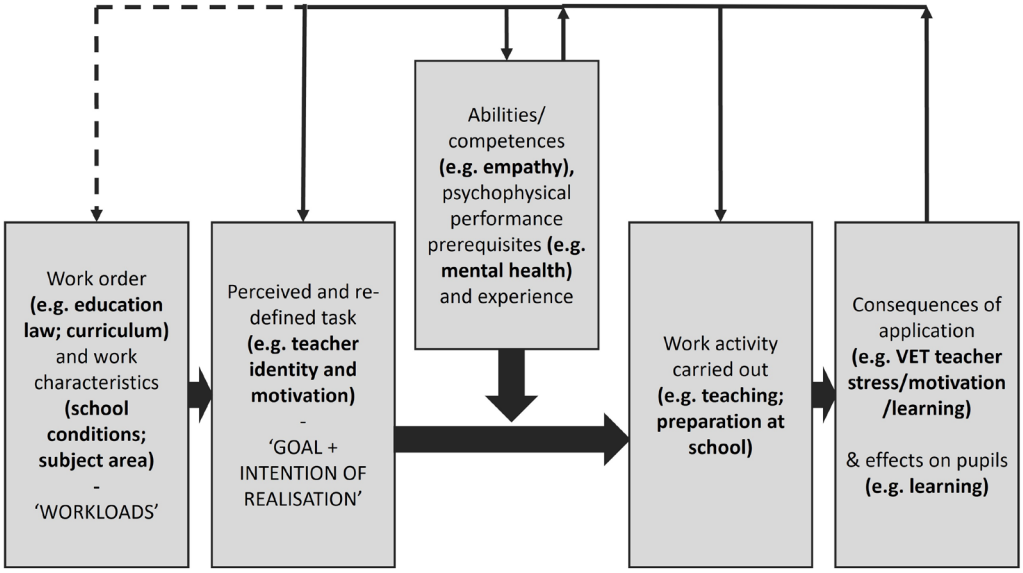


Figure 1: The Relationship Between Work Characteristics, Psychological Processes, and Individual Performance Requirements for Teachers in Vocational Education (cf. Richter & Hacker, 2017)

This approach is particularly valuable in the VET context, where the combination of pedagogical, organizational, and interpersonal demands creates distinct challenges. By analyzing the specific tasks and organizational conditions faced by VET teachers, we can create competence profiles that address the complexities of their roles. This ensures that teachers are equipped with the skills necessary to handle the individual challenges of their profession while preserving their well-being. Furthermore, this analysis highlights the crucial role that work context

plays in shaping the competences required for effective performance. The following question needs to be clarified by deriving the required competences of VET teaching jobs:

What competences do VET teachers in Germany need to meet the challenges of their daily work in an effective and sustainable way?

3 Method

To analyze the competences that VET teachers need to effectively manage the diverse challenges of their daily work, we employed a condition-based, deductive approach focused on the work characteristics that VET teachers encounter both inside and outside the classroom. Our analysis began with a detailed examination of the job structure and its key sub-tasks, including teaching, lesson preparation, and organizational responsibilities. Using a structured, standardized, and empirically grounded method, we systematically derived the required competences from these work characteristics.[1]

3.1 Sample

We conducted objective work analyses for the jobs of 21 VET teachers. These teachers were from both an urban (n = 9) and a rural VET school (n = 12) in the state of Mecklenburg-Western Pomerania. For the derivation of the competence profiles, the roles of deputy head of school and two other job profiles were excluded as they were not suitable for developing a general VET teacher competence profile. The remaining 18 VET teaching jobs spanned seven different occupation or subject specific areas. Most teachers taught in the fields of metal, ship, and motor vehicle technology (n = 6 [33.3%]). Of the VET teachers, n = 5 [27.8%] taught apprentices in the areas of information technology and electrical engineering, agricultural economics (n = 3 [16.7%]), health and social work (n = 3 [16.7%]) and in the vocational training year (BVJ, n = 1 [5.6%]), that is part of the mentioned transition sector. It should be noted that the teaching jobs were rarely assigned to a single subject or occupational area but usually taught in several areas. The job holders were predominantly male (nm = 10 [55.6%]; nw = 8, [44.4%]) with an average age of 47 years (SD = 9.8; Min = 32; Max = 61). On average, they had been employed at the school for 12 years (SD = 10.1; Min = 1.5, Max = 28) and had been in their current job for 11 years (SD = 10.4; Min = 1.5; Max = 28). No other personal data such as individual skills or performance was collected.

1 Further information on the work analyses can be found in Besser et al. (2023) and can be requested from the authors.

3.2 Measuring Instruments

The work characteristics of VET teaching jobs were explored for the first time using the 'Tool for Task Analyses and Job Design in Jobs with Mental Work Requirement' (TAG-MA) by Rau et al. (2021). This instrument is based on action regulation theory (Hacker & Sachse, 2014) and considers work content, including the necessary regulating mental processes and their structure, as well as job context. The TAG-MA instrument includes 35 ordinal scales covering 'work content and required level of cognitive regulation', 'organization and responsibility', and 'extrinsic learning requirements and intrinsic learning opportunities at work'. Additionally, 22 scales from supplementary TAG-MA modules, addressing work intensity (Rau, 2023) and dialogue-interactive work (Besser, 2024), were utilized. These scales are explicitly anchored and described, enabling a precise differentiation between the levels and a detailed, objective measurement of the work characteristics, independent of the personal experiences and perceptions of the job holders.

The comprehensive procedure for analyzing work characteristics began with a review of relevant documents, including work orders and organizational structures, such as the Educational Act. Afterwards, the work analysis of the VET teachers took place. For this purpose, 23 observation interviews were conducted with 21 teachers, each over a typical working day or, in two cases, over two days, with the help of the TAG-MA instrument and the abovementioned additional modules and scales. Among other things, the following aspects were observed and additionally questioned throughout the day: The technical equipment, the preparation process, the laboratory equipment, the degree of freedom in independent lesson planning, the division of labor among teachers and the time allotted to the individual tasks. For jobs performed across various locations (e.g., school, children's home, laboratories), these workplaces were also visited and analyzed. The TAG-MA appraisal also considered the proportion of time allocated to each sub-task. The results of the work analyses for all 21 VET workplaces were published by Besser and colleagues (2023).

This explorative study extended the findings of these job analyses by systematically deriving the required competences in a structured and standardized manner. We used the 43 derivation rules of the work characteristics-competence matrix, 'Task Analysis to Identify Abilities, Skills, and Knowledge' (TASK; Besser, 2024). This instrument is based on theoretically and empirically validated relationships among the job, its content and context, and the competences required for successful performance, health, and motivation. It was validated using 115 distinct job analyses and competence derivations, encompassing roles such as clerks, fitters, management positions, and teachers (Besser, 2024).

This procedure ensures that the derived competences are effective in managing the daily tasks of VET teaching while maintaining overall well-being. Within the TASK instrument, competences are clearly defined, and it always provides positive indicators, ensuring a precise understanding of each competence. The TASK tool includes explicit rules for deriving

eight cognitive performance requirements, 25 social and communicative performance requirements, six skills for managing work autonomy, two for handling work intensity, and two related to personality traits. Specific professional competences, such as pedagogical skills or specialized knowledge, were not explicitly derived in this study, focusing instead on generic competences and work characteristics. To illustrate, Table 1 presents the rule for deriving problem-solving ability.

Table 1: Derivation Rule of the TASK (Besser, 2024) for Problem-Solving Ability Based on the TAG-MA Scales and Levels

Category of work characteristics	Scale	Level	Level Explanation	Decision
cognitive requirements	A7.4	E or F	The task requires developing solutions independently	2 of 2 =
	A7.5	By	The task requires the assessment of complex conditions	
responsibilities/ job content	DIA1.1	K	The task includes strategic decision-making requirements	1 of 3 =
	O3.1	E or F	The task requires joint problem solving with co-operation partners	
	O4.1	D or E or F	The work order requires responsibility for people, money, or the fulfilment of other people's orders	

Note. □ = the ability should rather be included in the requirement profile; □ = the ability should definitely be included in the requirement profile. Scale = the ordinal TAG-MA scales that were used to analyze the work characteristics. Level = the ordinal TAG-MA levels that indicate a specific manifestation of a work characteristic.

3.3 Procedure and Evaluation

After analyzing the VET jobs, the required competences - beyond specific occupation or subject specific expertise - were identified based on the assessment of the work characteristics[2]. We applied the if-then rules of the TASK to the work analysis data using IBM SPSS Statistics 29. Each job was divided into tasks, and each task was analyzed according to the assigned levels of the TAG-MA scales. These tasks, such as 'teaching', 'preparation and postprocessing', and 'additional tasks (e.g., attending curricula planning conferences)', differed fundamentally in terms of cognitive regulation level and work content.

For example, 'teaching' involved imparting knowledge and 'preparation' involved planning one's work. Due to the dialogue-interactive nature of these tasks and the different programs

2 Further information on the work analyses can be found in Besser et al. (2023) and can be requested from the authors.

and school organizations, these tasks varied in activities and resulting cognitive and behavioral challenges. Technical teachers, for example, sometimes taught in laboratories and workshops (requiring high levels of conscientiousness and care due to safety regulations). Differences in lesson duration (e.g., 45-minute lessons at one school vs. 90-minute lessons at another) led to different scheduling requirements. These tasks also varied in the proportion of time teachers spent on them in relation to the entire working week/working day (see Table 2). For example, teachers spent different amounts of time preparing their lessons or attending conferences.

Table 2: Overview of the Time Shares of the Different Tasks of the VET Jobs (n = 18)

Tasks	*N*	*Share of time in %*		
		%	Min %	Max %
Teaching	18	53.9	40.0	80.0
Preparation and postprocessing	18	31.9	10.0	55.5
Audit Committee (e.g., curricula planning conferences)	7	10.2	2.0	35.0
Additional tasks	6	16.7	5.0	30.0
Problems of pupils	3	6.8	7.0	12.3
Management activities	1	9.0	9.0	9.0

Due to the high individuality of the VET jobs, reinforced by the teachers' utilization of their own degrees of freedom, each VET teaching position required a unique set of skills and competences tailored to the tasks and challenges of that position. This necessitated a tailored derivation process for each VET teaching job and its associated tasks. Figure 2 illustrates this process by showing how the competences for 'teaching' were identified for a particular position.

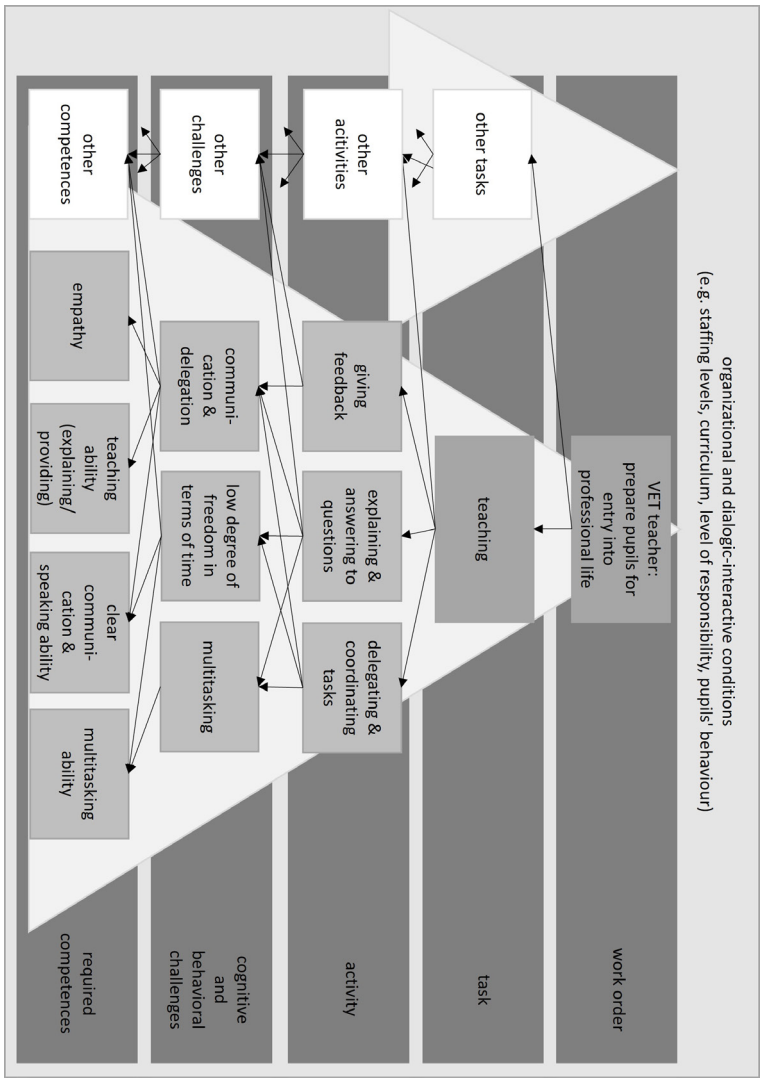


Figure 2: Schematic Representation of the Work Order, Tasks, Activities and Resulting Challenges of a VET Job and the Derived Required Competences

In the final step, the skills derived at the task level were aggregated into competence profiles for the individual VET jobs. Skills were only integrated into the competence profile if they matched the corresponding required work characteristics for at least one task. For example, if a teacher had to mediate significant conflicts, the 'mediation ability' was included in the competence profile, regardless of its frequency. The frequency of inclusion of individual skills across all VET teaching jobs was calculated, and competences identified in all work analyses were included in the overarching requirements profile (see figure 6).

4 Results

The results focus on the competence profiles and the frequency of derived competences across all 18 VET teaching positions. Since competence terms can sometimes be unclear or ambiguous, definitions are provided below for clarity. This section also explains the rationale behind the derivation of each competence, based on the specific work characteristics of the examined positions. Additionally, specific empirical studies are referenced to support the derivation of each competence, ensuring transparency and traceability. These studies are not exclusively selected for the teaching profession but reflect empirical evidence from the TASK framework, which derives competences across various professions based on specific work tasks and contexts. Their inclusion clarifies the reasoning behind each competence, while the overall approach remains deductive, adhering to the structured rules of TASK, which itself is grounded in a broad set of empirical research. Figures 3 to 5 illustrate the frequency of competences derived from the 18 VET teaching positions in Mecklenburg-Western Pomerania.

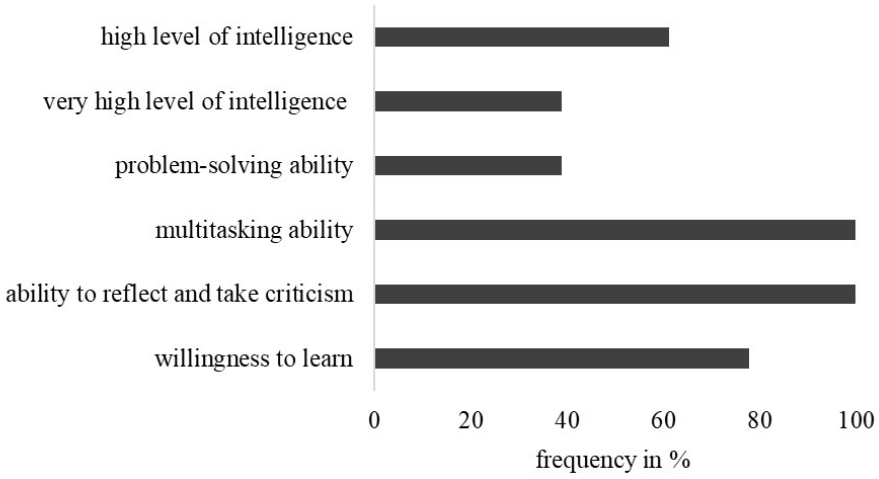


Figure 3: The Frequency of Inclusion of Cognitive Skills in the Competence Profiles of n = 18 VET Teachers

Cognitive skills primarily refer to the abilities required across various situations to independently master complex tasks (Blickle, 2019). Some tasks within these jobs were cognitively very demanding, particularly those involving joint conferences and strategic boards, which required higher cognitive abilities. However, there were also routine-based tasks, characterized by frequently recurring content and procedures. The extent to which these tasks were carried out and their quality depended on the programs, the school, and the specific job design. Consequently, cognitive competences were derived differently across various roles.

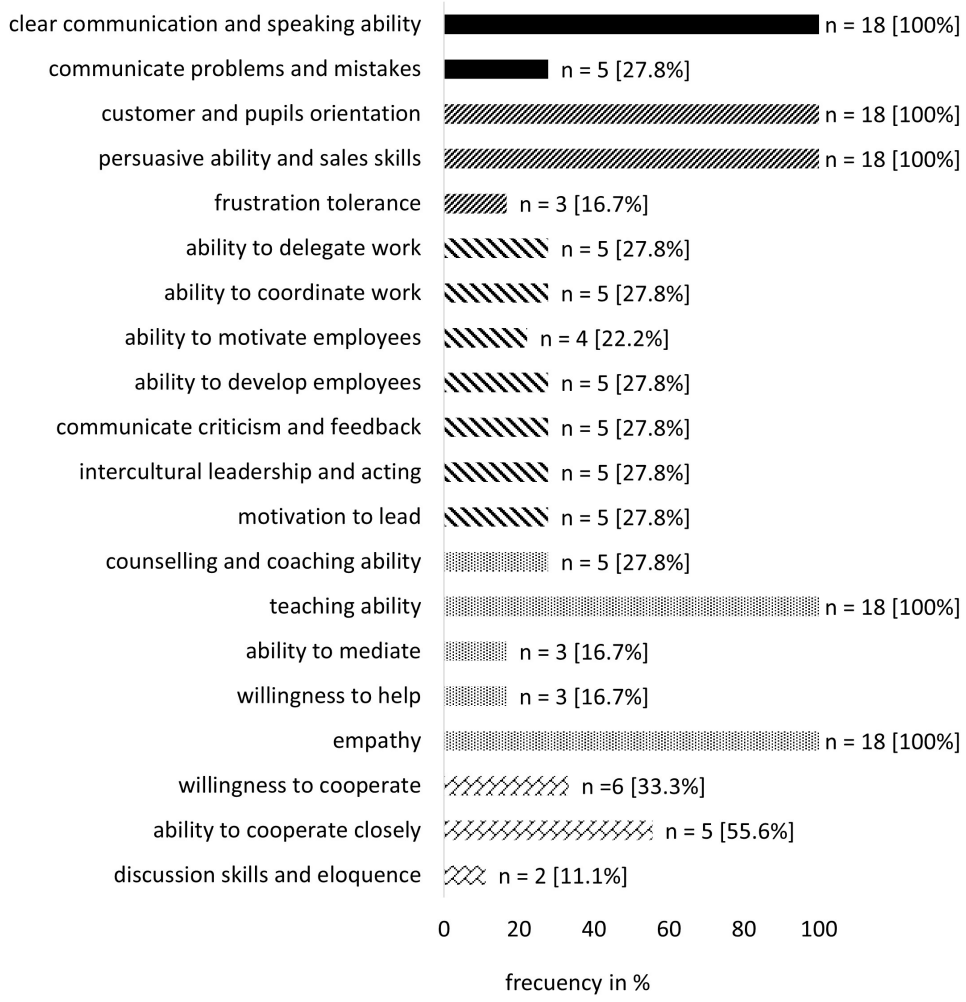
a. *Intelligence:* This competence relates to the general factor of intelligence. Fundamentally, all VET teachers need a certain level of intelligence because their roles consistently involve a significant degree of decision-making freedom and cognitive challenges. The complexity and demands of these positions necessitate a solid cognitive foundation to effectively manage the various tasks and responsibilities. Thus, all teaching jobs required a high to very high level of intelligence (n = 18 [100%]).

b. *Problem-Solving Ability*: This is the ability to view and understand complex relationships from multiple perspectives, which is crucial in cognitively challenging work activities (Heyse, 2017; Schmidt & Hunter, 1998). In VET work, teachers were not always confronted with complex problems. For instance, if the teaching content was frequently repeated and involved the work characteristic of 'selecting from known operations', this competence was not required. However, problem-solving ability was particularly important during cognitively demanding tasks such as joint conferences and management activities. Since not all teachers were involved in these tasks, problem-solving ability was included in the competence profiles of only seven (38.9%) teaching jobs.

c. *Multitasking Ability*: This refers to the ability to switch quickly between tasks and maintain control over multiple stimuli (Sanderson et al., 2013). Specifically, classroom work requires the simultaneous performance of multiple subtasks, such as instructing pupils while monitoring their progress and managing classroom behavior. As all teachers taught, this ability was derived for all VET occupations (n = 18 [100%]).

d. *Ability to Reflect and Take Criticism*: This is the ability to critically and independently assess one's own performance in relation to a task or situation (Grandke, 1998). It is required when tasks are designed to promote learning and provide a basis for further development. Since all teachers received substantial feedback from pupils and through the results of their work and needed to incorporate this feedback into their practices meaningfully, this skill was derived for every teaching role (n = 18 [100%]).

e. *Willingness to Learn and Efficient Learning Behavior*: This competence goes beyond the ability to reflect. It means actively and willingly acquiring new knowledge to apply it to tasks or activities (Heyse, 2017). Most teachers had extrinsic learning requirements in addition to their demanding tasks. In other words, they had to learn outside of their profession. Teaching is a profession that has particular professional development requirements, especially in the field of vocational education, where many teachers need to know about technical innovations and the later professional realities of their pupils. As this was observed and/or reported, this ability was derived for most VET occupations (n = 14 [77.8%]).



Note. Symbol coding of competence categories: ■ = communication skills; ■ = person-related skills; ▨ = person-influencing skills; ■ = person-altering skills; ▨ = cooperation skills; n-values and per cent values indicate the inclusion-rate of the competences.

Figure 4: The Frequency of Inclusion of Social Skills in the Competence Profiles of n = 18 VET Teachers

Social skills include skills and abilities that serve to successfully realize goals and plans in interactive situations. VET teachers need most of the social and communication skills that can be derived with the TASK. This is a colorful bouquet that includes general communication skills, person-related skills (e.g., persuasiveness), person-influencing skills (e.g., delegation skills) and person-altering skills (e.g., empathy). However, a lot of the social skills are aimed

less at the dialogue-interactive part of the job (i.e., teacher-pupil interaction) and much more at the prerequisites necessary for a smooth workflow with colleagues and superiors.

a. *Ability to Communicate Clearly:* This refers to speaking effectively and intelligibly so that the intended message reaches the recipient (Grandke, 1998). As all teachers worked interactively in dialogue, this ability was derived for all VET roles (n = 18 [100%]).

b. *Communicating Problems and Errors Openly:* This is the interactive component of conscientiousness or reliability, relating to the open communication of problems with colleagues and superiors (n = 5 [27.8%], Heyse, 2017).

Person-Related Skills are service and sales skills that usually presuppose the exchange of goods for money. Nevertheless, some of these skills are important for effective VET teaching as pupils are increasingly labelled and treated as 'customers' in the VET context. That requires a basic customer orientation (Tafner, 2009).

a. *Customer and Pupil Orientation:* This refers to the attitude of recognizing and fulfilling the needs and expectations of pupils to increase their benefit. This requires a willingness to engage with the nature of the pupil and focus on their individual wishes and needs (Nerdinger, 2003). Since working with pupils was the main characteristic of the overall work and included activities like counselling, mediation, and service, this skill was derived for all jobs examined (n = 18 [100%]).

b. *Ability to Persuade:* This is the ability to win the agreement of others through factual arguments (Grandke, 1998). This ability played an important role due to the partly non-practical topics of the curriculum that must be taught. This refers to exam-relevant material not directly related to the pupils' future work context, such as legal matters or theoretical knowledge that doesn't apply to practical tasks. The curricula often prioritized exam requirements over the job characteristics trainees would encounter, which affected all teachers, leading to the competence being derived for all jobs (n = 18 [100%]).

c. *Frustration Tolerance:* In an entrepreneurial context, this refers to the ability to deal with rejection and negative feedback without experiencing negative physical or emotional consequences. It includes actively and positively coping with stress and the ability to deal with conflicts and stressors (Green, 2014; Tapia et al., 2019). As some of the lesson content was difficult to convey and had to be 'sold' to prevent demotivation among pupils, this ability was deduced n = 3 (16.7%) times.

The skills and abilities of *person-influencing* work primarily aim to change objects or processes, which typically includes leadership activities (Hacker, 2009). As some teachers had

leadership responsibilities, either in the context of a specific leadership position (e.g., head of department) or in organizing projects, class trips, or working groups, all leadership skills were only included in the competence profiles in these cases (n = 4–5 [22.2–27.8%]). In contrast to leadership activities, person-altering work activities are characterized by the fact that they necessarily require the active participation of the dialogue partner (in this case, pupils; Hacker, 2009). As teaching is fundamentally associated with responsibility for the development of pupils, most of these skills are particularly important.

a. *Counselling and Coaching Ability:* This describes the ability to help individuals, teams, or organizations solve problems independently through methodical impulses, targeted questions, and tips. People with this ability ask the right questions, give plausible advice, and represent their expert opinions (Heyse, 2017). Since some VET teachers had to deal with the personal problems of their pupils and counsel them, this competence was included in n = 5 (27.8%) competence profiles.

b. *Teaching Ability:* This describes the ability to impart technical and methodological knowledge at a specific didactic level and successfully organize learning processes. Essential components include a high level of didactic and occupation or specific knowledge, the ability to explain learning content clearly, and the ability to respond to learners' difficulties (Heyse, 2017). The ability to explain or teach has a significant impact on pupils' understanding in learning situations (Rosenshine, 1968) and was derived for all examined positions (n = 18 [100%]).

c. *Mediation Ability:* This means mediating between several parties in a conflict. This skill was inferred for classroom activities that required arbitration or mediation, particularly for specific tasks such as dealing with pupils' problems, which was particularly the case for teachers working in transition system classes for disadvantaged youth (e.g., BVJ). (n = 3 [16.7%], Cheng, 2015).

d. *Willingness to Help:* This is the ability and disposition to help others in various situations and support their needs. A helpful person shows a willingness to communicate and cooperate and a desire to help others, even if it means foregoing their own advantages (Heyse, 2017). This ability is especially important in healthcare professions. Although less critical in the classroom, there were tasks such as dealing with pupils' problems or activities on school trips, that justified its derivation for these position (n = 3 [16.7%]).

e. *Empathy:* This is a complex cognitive and emotional ability that enables an individual to understand and sympathize with the perspective, emotions, and thoughts of another person. Empathic individuals recognize others' needs and emotions and respond appropriately (Grandke, 1998). This ability is required in nearly all person-altering

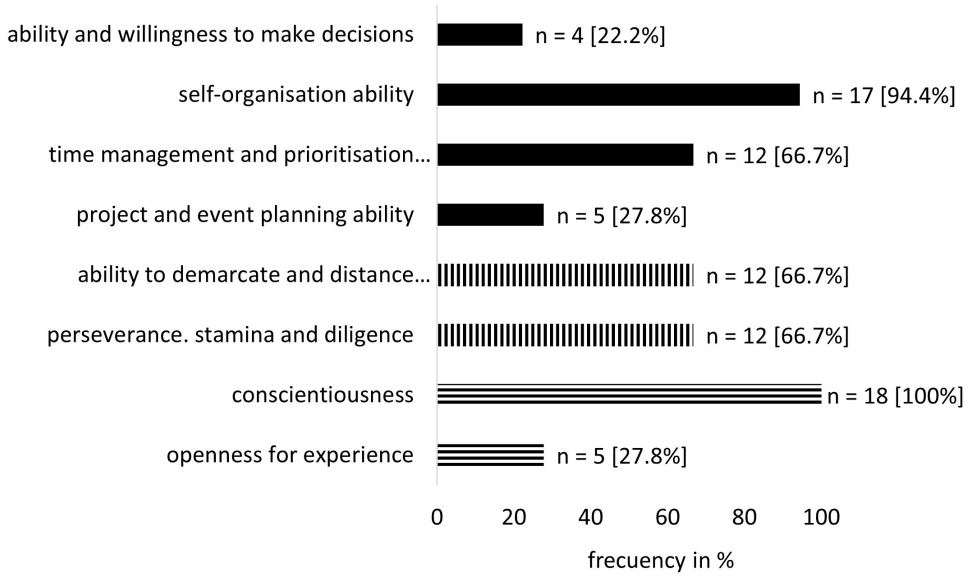
positions (Hacker, 2009) and was thus derived for all the teaching jobs analyzed (n = 18 [100%]).

Cooperation and required cooperative skills are determined by the distribution of work between collaborating employees (Rau & Göllner, 2019). Cooperation-related requirements result both from the form of cooperation (cf. TAG-MA scale O2.1) and from the task-related communication content (cf. TAG-MA scale O3.1; Salas et al., 2000).

a. *Willingness to Cooperate*: People with the willingness to cooperate work reliably in a team, absorb information from other team members, and implement it constructively. They can participate productively in teamwork without prioritizing personal animosities or conflicts (Heyse, 2017). Teams that only coordinate perfunctorily and do not need to solve common problems require this basic team ability (Sundstrom et al., 1990). As some of the VET occupations observed only require basic organizational collaboration, this skill was included in the competence profiles of six (33.3%) teachers in apprenticeship occupations. These were mainly occupations that require minimal co-operation in conferences and primarily involve occupation specific teaching.

b. *Ability to Cooperate Closely*: This refers to the ability to tolerate and incorporate different perspectives into work results to work together effectively. People with this ability can solve problems collaboratively and coordinate joint actions according to their strong skills and experiences (Heyse, 2017). Teams that must work very closely together and rely on each other need this ability (Fletcher et al., 2004), and it becomes even more important when tasks are particularly complex (Starker & Weth, 2008). Many teachers took on additional tasks that required close collaboration, such as actively participating in or leading an examination or digitalization advisory board. Since this required close cooperation with other colleagues, intensive consultation, and the development of solutions for various problems, this skill was derived for 10 (55.6%) profiles.

c. *Discussion Skills and Eloquence*: This refers to the ability to initiate work activities through linguistically convincing suggestions, lead discussions argumentatively, and shed light on problems from different perspectives. People with this ability adapt to the language level of their interlocutors and use various linguistic means to achieve their goals (Heyse, 2017). Since only some tasks, such as participation in specialist conferences, required joint problem solving while the parties had different perspectives, this ability was only inferred for two (11.1%) positions.



Note. Symbol coding of competence categories ■ = dealing with autonomy; ▥ = dealing with work intensity; ▤ = personality traits; n-values and per cent values indicate the inclusion-rate of the competences.

Figure 5: The Frequency of Inclusion of Personal Skills in the Competence Profiles of n = 18 VET Teachers

The category of *personal skills* includes dispositions, attitudes, values, self-perception, and organizational skills. These skills also encompass dealing with different stressors (Blickle, 2019). When there are several efficient and goal-oriented ways to execute tasks and achieve work results, it represents a challenging and potentially beneficial scenario where certain skills and abilities to handle autonomy are particularly useful.

a. *Ability and Willingness to Make Decisions*: People with this skill show initiative, take a proactive approach, and make confident decisions even in difficult situations. They gather appropriate information, assess alternatives, and set clear priorities (Heyse, 2017). This ability is particularly required in management positions with a high degree of freedom, undefined tasks, goals, and the necessity to make important decisions (Fletcher et al., 2004; Fuller et al., 2010). This applied to four (22.2%) VET jobs with leadership responsibilities.

b. *Self-Organization Ability*: This refers to the ability to plan, coordinate, and implement one's own actions actively and largely independently of supporting factors. It requires a high degree of independence, initiative, and planning ability. Self-organized individu-

als can schedule their work processes without the help of superiors (Heyse, 2017). This ability ensures a better work-life balance and performance in complex work activities with high degrees of freedom (Badri & Panatik, 2020). Since many complex tasks in VET jobs had to be planned independently, this skill was essential for almost all positions (n = 17 [94.4%]).

c. *Time Management and Prioritization Ability*: This refers to the capacity to actively and effectively plan and organize one's own time to successfully complete important tasks, even under time pressure. It includes the application of time management techniques and methods, as well as basic project management skills (Seiwert, 2011). This ability is particularly important when urgent tasks need to be completed immediately or when other intensity-generating working conditions are present (Korunka & Kubicek, 2013; Mazmanian et al., 2013). Among the positions analyzed, 12 (66.7%) were characterized by high work intensity in addition to a high degree of autonomy.

d. *Project and Event Planning Ability*: This refers to taking personal and economic responsibility for projects or events and demonstrating leadership skills within those projects. People with this ability can successfully plan, organize, and coordinate complex projects while considering resources, deadlines, costs, and quality (Heyse, 2017). Since some VET teachers had to plan and implement class trips, project days, or similar activities, this skill was included in the competence profiles of five (27.8%) teaching jobs.

Work intensity is a characteristic of work that can disrupt or hamper regulatory processes (Rau & Göllner, 2018). It represents one of the central burdens of the modern working world (Stab & Schulz-Dadaczynski, 2017). Conditions leading to high work intensity include time-related contradictions, frequent work peaks, numerous deadlines and the associated time pressure, stressful unforeseen events requiring quick reactions, and work extensification due to excessive workload (Kristensen et al., 2004; Tommasi et al., 2021). Positions characterized by excessive work intensity can produce negative consequences such as stress and inability to recover (Rau & Göllner, 2019).

a. *Ability to Demarcate and Distance Oneself*: This refers to the ability to psychologically detach from work content when absent from the workplace (Sonnentag & Fritz, 2015). This allows depleted resources to be replenished and energy to be drawn (Schaarschmidt, 2006). It has been shown that stress resilience, work-life balance, coping mechanisms, and the ability to set limits in intensive work environments positively influence job satisfaction, well-being, and the intention to stay (cf. Zander et al., 2010). Most VET teaching jobs face at least one work intensity condition, including work

peaks and time-related contradictions, which is why this skill was included in 12 (66.7%) competence profiles.

b. *Perseverance, Stamina, and Diligence*: These are combinations of skills that allow a person to focus on their goals and pursue them with great willpower and persistence. These qualities enable an individual to overcome stress and obstacles (Heyse, 2017). This ability becomes necessary at high work intensity in connection with high autonomy, as it can alleviate emotional exhaustion (Clauss et al., 2021) and lead to the efficient use of working time (Hacker, 1995). This combination of work characteristics applied to the same 12 (66.7%) teaching jobs that already required the ability to distance oneself.

Some *personality traits* play an important role for VET teachers in various execution conditions and across a wide variety of work content.

a. *Conscientiousness:* This personality trait is characterized by a disciplined way of working, a strong sense of duty, and task awareness, as well as a trustworthy working style. A conscientious person addresses mistakes and problems if they jeopardize their own work or the organization (see the ability to 'communicate problems and errors openly'). Conscientious individuals adhere precisely to guidelines, safety rules, and deadlines, and fulfill the requirements placed on them (Heyse, 2017). As the teachers had to carry out many testing activities and adhere to certain safety rules when dealing with pupils and technology, this ability was derived for each position analyzed (n = 18, 100%).

b. *Openness to Experience (Dealing with Change)*: This personality trait is characterized by openness to new ideas and experiences in the work context. Open-minded individuals do not resist change but instead seek to develop further and actively improve the current situation. People with this characteristic typically demonstrate the most creative performance in unsure situations and exhibit high levels of mental stability (Heyse, 2017). This ability is crucial for upcoming job changes that require the learning of new qualifications for the job holder (Nieß & Zacher, 2015). Since for the most part no drastic changes were planned for the positions examined (except for new classes or smaller digitalization measures), this characteristic was included in the competence profile of only five (27.8%) positions. This applied to teachers in technical professions, whose work will change due to new technical developments in the field (e.g., use of robotics).

The *Most Frequent Competences*: Figure 6 provides an overview of the skills that were important for all VET teachers, regardless of the school, class, or occupation area they taught. Here, the most frequent competences for VET teaching positions in Mecklenburg-Western Pomerania are illustrated. This means that this overarching profile includes the competen-

ces identified in the analysis of all teaching positions. Thereby, the ability for self-organization was included, having been derived for only 17 individual competence profiles.

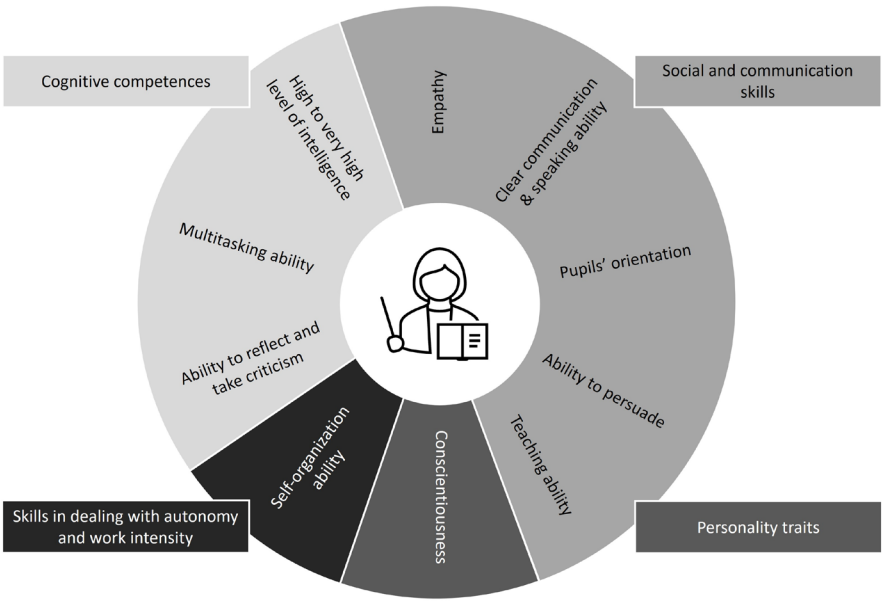


Figure 6: The Most Frequent Competences for VET Teaching Positions in Mecklenburg-Western Pomerania – The Overarching Competence Profile

5 Discussion

The findings of this study highlight the crucial role of context in shaping the competences required for VET teachers. Competences cannot be universally applied across different schools, occupational areas, or regions without considering the specific work environments and tasks. This study shows that VET teachers' competences are influenced not only by general educational goals but also by the unique demands of their teaching contexts (cf. Hacker, 2009; Pflanzl & Krammer, 2017). For instance, the skills needed in technical training differ significantly from those required in health and social care. Additionally, regional factors, such as rural versus urban schools, staffing levels, and market demands, further shape the competences needed by VET teachers. This underscores the importance of a context-sensitive approach to understanding and developing competence profiles.

5.1 Context-Specific Competences in VET

This context-sensitive approach, grounded in action regulation theory, emphasizes the relationship between work tasks, the organizational environment, and the competences needed to meet these specific demands. The action regulation theory posits that the structure, autonomy, and complexity of work tasks, as well as the degree of social interaction and decision-making involved, directly influence the psychological and cognitive requirements of a job. In VET teaching, where tasks range from lesson planning and classroom management to administrative duties and pupil mentorship, the competences required are shaped by the immediate work environment. This highlights the need for a method capable of capturing these nuances.

5.2 The Most Frequent Competences – The Overarching Competence Profile

While the context-specific nature of competences is crucial, this study also identified an overarching competence profile applicable to most VET teaching positions (see figure 6). By analyzing the tasks and contexts across different schools and occupational areas, we were able to identify core competences that are consistently required, regardless of the specific teaching context. These competences include qualities such as conscientiousness, empathy, and multitasking ability, which emerged as necessary for managing the broad spectrum of challenges faced by VET teachers.

This overarching profile does not negate the importance of context-specific competences but complements it. It allows for the development of general competence frameworks that can be used in teacher training programs, while still allowing for adaptations based on the specific context in which teachers work. The ability to balance both the contextual and generalizable aspects of competence development is a key strength of this study and offers practical applications for VET institutions aiming to create more flexible and targeted professional development programs.

5.3 The Value of a Deductive Approach

The deductive approach used in this study offers a clear advantage by linking competences directly to specific tasks and the conditions in which they are performed. This method ensures that the competences identified are not only tailored to the particular context but also provide a framework for comparison across professions. When similar tasks are carried out under comparable conditions in other professions, the same competences would likely emerge as necessary.

This approach increases the transparency and replicability of the findings. It shows that if tasks such as decision-making, planning, or conflict resolution occur in similar environments, the same set of competences - such as self-organization ability or the ability to persuade - can be derived, whether in teaching, healthcare, or engineering. This consistency makes it possible to compare competences across different fields and use them as a basis for workforce planning and professional development.

Although the competences identified in this study may resemble those derived from other approaches (cf. Henri et al., 2017; Köpsén, 2014; Schmidt, 2017; Smith & Yasukawa, 2017), the deductive method used here offers significant added value. By focusing on the specific work context and providing detailed, empirically grounded results, this approach ensures a higher degree of relevance and traceability. The context-sensitive nature of the findings makes them more applicable to the actual demands of VET teachers, offering practical insights that other methods may overlook.

5.4 Implications for VET Teacher Training

The results of this study have implications for VET teacher training and professional development. The findings suggest that current study programs may not adequately address the context-specific competences identified in this study. To better prepare VET teachers for the diverse challenges they face, VET teacher education could be tailored to the specific demands of the schools, programs, and regions in which teachers operate. For instance, teachers in industrial and technical fields may require a different set of organizational and technical competences than those in social care, where ability to distance oneself and communication skills are paramount. In future studies, therefore, it should be examined in more detail which differences result from specific contexts like occupational areas and levels of VET.

Incorporating these insights into teacher study programs and training in practice can lead to more effective and sustainable professional development. Programs that focus not only on pedagogical skills but also on the broader range of cognitive, social, and emotional competences will better equip teachers to handle the psychological and organizational demands of their roles. This approach promotes a stress-optimized, motivated, and healthy working environment, enabling teachers to sustain their well-being and effectiveness over time.

5.5 Limitations, Perspectives and Conclusion

Although this study offers valuable explorative insights into the competences required by VET teachers, there are a few considerations that should be addressed. While one of the strengths of the deductive approach is its ability to adapt to different contexts, the findings are closely tied to the specific environments in Germany which they were derived. For instance,

the competences identified in this study reflect the specific educational settings and labor market demands of the region where the data was collected. For example, the findings indicate that intercultural competences for example played a minor role in this context. During both the observational and interview phases, few multicultural interactions were reported or observed. This may be applicable to Mecklenburg Western Pomerania and the specific schools we surveyed but may be quite different in other regions with more immigration and multicultural contexts. A larger sample size would have been necessary to account for this variability.

Furthermore, although there were observable differences between cognitively "more difficult" and "easier" content matter or between classes with apparently less/more motivated pupils, it was not possible to derive more differentiated competences than teaching ability from this with the instrument provided and the small sample size. Finally, many of the social skills identified focus less on the dialog-oriented, interactive aspects of teaching (e.g., teacher-pupil interaction) and instead emphasize the requirements for smooth collaboration with colleagues and superiors. This finding reveals an important limitation of the TASK instrument - it is not tailored to the specific requirements of the teaching task. Teaching itself necessitates nuanced and refined social competences that are difficult to capture with an instrument so strongly rooted in action regulation theory.

However, this also highlights a strength of this approach - namely, that it is flexible enough to adapt to different contexts. Unlike normative competence models that assume universal applicability, this method allows for context-sensitive adjustments. And while the instrument may overlook subtle aspects critical to the teaching task, it provides a broad overview of relevant competences of the profession in Germany. Future research should explore how these competence profiles might differ in other educational systems, industries, or cultural contexts, further validating the adaptability of the approach. There is evidence for the transferability of the approach to VET teaching in other countries, such as Iceland and Norway (Kaiser et al., 2024).

Additionally, integrating competences into training content presents significant challenges. Implementing competence-based approaches can be resource-intensive, which can strain existing educational systems. Additionally, educators and institutions may resist transitioning from traditional methods due to comfort with established systems and fear of change. Biemans et al. (2004) highlight that such education systems might oversimplify competences or misalign educational standards with actual job requirements, resulting in a fragmented understanding of professional roles. Therefore, competences and theoretical knowledge should not be broken down into isolated units but integrated holistically to prepare teachers for the complexities of modern educational environments effectively (cf. Biemans et al., 2009; Wheelahan, 2019).

This study highlights the importance of understanding VET teacher competences through both a context-specific lens and a broader framework that identifies common competences across different educational environments. The findings underscore the need for a deductive, empirical approach to competence development that is grounded in the specific work characteristics of VET teachers while remaining adaptable to different contexts. By using this approach, it is possible to create competence profiles that are both flexible and comparable across professions, ensuring that VET teachers are equipped with the skills they need to thrive in their roles. Future research should continue to explore how this approach can be applied in different geographic and educational contexts, validating the adaptability of the method across diverse environments.

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Ethics Statement

The respondents of the study have given an informed consent about the aims and the overall purpose of the research, the research methods, and the anonymized publication of the data in the course of the present contribution. This work was guided by the "Rules for safeguarding good scientific practice and avoiding scientific misconduct at the University of Rostock".

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