Profiles in Teachers' Value-Based Tensions in Senior Secondary Vocational Education and Training

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Abstract

Context: With an increase in cultural diversity in many countries, schools and teacher educators are grappling with the question of what this diversity might bring in vocational education, and how teachers can be prepared to work with this diversity. In order to train and empower teachers who experience tensions because of culturally diverse student populations, it is useful to know whether teachers do have different needs to work with this diversity. This study reports on profiles in teachers' experience of value-based tensions (professional ethics and stance, diversity and communality, respect, personal autonomy, and justice) teaching in culturally diverse classes of Senior Secondary Vocational Education and Training (SSVET).

Methods: This study relied on data from a questionnaire completed by 891 teachers from 20 culturally diverse SSVET schools in the Netherlands. A Hierarchical Cluster Analysis was performed to identify subgroups of teachers that have a similar pattern of responses (profiles) with regard to the different value-based tensions they experienced. Subsequently, the association of the distinguished profiles with the competence elements (knowledge, skills and attitudes) was examined with ANOVA. Lastly, the P-value of the Pearson Chi-Square was

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examined through cross-tabulation analysis to determine whether the associations between the distinguished profiles and personal and contextual characteristics were statistically significant.

Findings: Hierarchical cluster analysis identified three profiles suggesting that teachers experienced all tensions more or less to a certain degree: Relaxed, rarely tense, or reasonably tense. "Professional ethics and stance" tension was the most frequently experienced value-based tension in all three profiles. The profiles were related to teachers background characteristics. The teachers with a reasonably tense profile work mainly in the lower levels of the SSVET. These teachers reported to have had more training on the topic of multicultural education. Teachers with relaxed profile reported having fewer skills than teachers with medium and reasonably tense profiles.

Conclusion: The current study suggests that the culturally diverse student population creates tensions for teachers in SSVET and - depending on the type of profile - for some teachers more than others. The most frequently experienced tension on professional ethics and stance in all profiles confirms that all teachers experience conflicts with regard to their own norms, values and convictions and those of their students on the one hand, and the standards of the labor market with its own specific requirements for professional ethics and stance as a third party on the other. For teacher educators, the profiles can be useful as a reflection tool during study and professional development, as different groups of teachers have been distinguished and some groups need extra training in all the tensions. In SSVET, teachers with the different profiles could support each other in the process of coping with the value-based tensions.

Keywords: Tensions, Values, Teacher Profiles, Cultural Diversity, Vocational Education, Vocational Education and Training, VET

1   Introduction

Teaching in culturally diverse classes is demanding for teachers and they are often confronted with tensions for which they feel not competent to cope with (Banks & Mc Gee Banks, 2004; den Brok & Levy, 2005; Ladson-Billings, 2004; Tielman et al., 2012). Teachers bring their own personal characteristics, norms and values which interfere with the wide variety of value orientations of their students with cultural diverse backgrounds in every lesson. These value-driven interactions can create tensions for teachers (Leeman, 2006; Radstake, 2009; Tielman et al., 2021). Teachers of culturally diverse classes rate value-based tensions as the most difficult tensions to deal with (Radstake & Leeman, 2007). These tensions manifest themselves in many ways and vary in intensity depending on the personal perception of the

teacher (Henze et al., 2000; Radstake et al., 2007). Such tensions may challenge personal feelings, values, beliefs or perceptions and are therefore often not easy to resolve (Pillen, 2013). In the Netherlands, students from culturally diverse backgrounds increasingly are entering schools for senior secondary vocational education and training (SSVET) and in some large cities they make up as much as 80% of the student population (CBS StatLine, 2018). Before proceeding, some remarks on the Dutch SSVET.

The Dutch education system encompasses separate schools for SSVET. SSVET prepares students for work or subsequent study programs and social participation. SSVET is divided into four training levels, varying from qualification level 1, i.e., assistant training (duration of 1 year), to qualification level 4, i.e., management training or specialist training (duration from 3 to 4 years). In SSVET schools a distinction is made between two types of learning tracks, the school-based, and the work-based track providing a total of 735 training qualifications (http://www.mboraad.nl/[1]). Together with the differentiated nature of SSVET and the multitude of different subject areas to be trained and customized, there are also large differences between teachers in terms of personal characteristics and educational backgrounds (de Bruijn, 2013; Duch & Andreasen, 2015). In addition, SSVET teachers have different roles, such as teachers of general subjects, vocational subjects, practical subjects and practical supervisors. Aside from the cultural diversity, the teaching staff is diverse in itself.

Dutch SSVET has a cultural diverse student population that causes, just like in any other type of education, value-based tensions for the teachers (Tielman et al., 2021). Within SSVET the causes of value-based tensions do not only lie in the interaction between teachers and students due to discrepancies in common norms and values, but also in the field of professional ethics and stance (Tielman et al., 2021), which means that the interaction of both students and teacher with the labor market does play a significant role in creating additional tensions. In the present study, value-based tensions in SSVET are defined as the teacher's internal struggle between, on the one hand, his/her own beliefs, norms and values and, on the other hand, the requirements of the profession versus the student's culturally formed beliefs and perspectives on norms and values. In order to cope with these value-based tensions teachers should develop multicultural competence, which is seen as *"an ability to continuously (a) explore their attitudes and beliefs about multicultural issues, (b) increase their understanding of specific populations, and (c) examine the impact this awareness and knowledge has on what and how they teach as well as how they interact with students and their families"* (Spanierman et al., 2011, p. 444).

In previous research conducted by the authors, value-based tensions (professional ethics and stance, diversity and communality, respect, personal autonomy and justice) were found (Tielman et al., 2021) and teachers' multicultural competence appeared to be associated with the experience of value-based tensions (Tielman et al., 2022). Table 1 gives a description of the value-based tensions.

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1 The MBO Raad is the branch organization of schools in SSVET and adult education in the Netherlands.

Table 1: Value-Based Tensions (Tielman et al., 2022)

Value-based tensions	Description of the tension
Diversity and Communality	How to cope with group differences in terms of ethno-cultural background. The tension is that teachers mainly focus on the differences between students and not on the similarities.
Respect	Involves disrespect of students towards female teachers and school rules, disrespectful interaction between students and authority problems in the class.
Professional ethics and stance	Tensions or different values of teacher compared to students in coaching students on their professional attitudes and work ethics with regard to punctuality, integrity, dealing with authority and professional standards.
Justice	Tensions related to whether or not the teacher acts fairly, according to the students, when assessing students' work or evaluating students' behavior.
Personal Autonomy	Tensions, often occurring with individual students who, in the teachers' opinion, choose loyalty to the group rather than acting more autonomously in their decisions.

Examples of values-based tensions in the classroom for diversity and communality are situations where difficult topics need to be discussed, related to sexuality or religion. For respect, an example is when a teacher may feel that their rules or procedures are not respected. Professional ethics and attitudes may be at stake when, because of their cultural background/beliefs, students have difficulty performing certain professional tasks or have difficulty exhibiting professional behavior in the professional context. For justice, the teacher may feel confronted with unjustified accusations of discrimination by students. Finally, for personal autonomy, an example is when students refuse to tell the truth because they do not want to betray someone else in the group. Research also shows (Tielman et al., 2021) that when tensions are examined, they can also end up being positive. For example, in that study one teacher reported that his sensitivity to culturally diverse student populations increased after he interviewed students about the tensions he was experiencing; as a result, he invested more in creating a trusting relationship with his students.

In the context of SSVET, on average, value-based tensions related to professional ethics and stance, respect, and diversity and communality were experienced relatively frequent, and tensions related to personal autonomy and justice were experienced less often in comparison with other tensions (Tielman et al., 2021). However, there are considerable differences between SSVET teachers in experiencing these tensions, similar to the significant differences in value-related tensions experienced by teachers in culturally diverse general secondary education (Radstake, 2009). SSVET teachers are very diverse in background, prior education and position, even more so than teachers in general education (Orr, 2019), and it is possible that their experiences of value-based tensions are different and distinct from those in secondary education (e.g., Leeman, 2006; Radstake, 2009). SSVET teachers could perhaps be grouped according to the extent to which they experience different tensions, in order to learn more about the level and nature of the tensions experienced, the tensions as such and the SSVET context in which these tensions occur. Furthermore, the ways in which teachers

experience value-based tensions (Leeman, 2006; Radstake, 2009; Tielman et al., 2021) may differ according to their multicultural knowledge, skills and attitudes and their personal and context characteristics (Tielman et al., 2022). In general, multiculturally competent teachers experience less tensions (Henze et al., 2000; Radstake, 2009) than less competent teachers. However, in our previous research (Tielman et al., 2022) the outcomes were less clear cut and we could not properly explain all findings regarding the relationship between competencies and background characteristics of teachers in SSVET and the experience of value-based tension. Teachers' self-perceived multicultural knowledge, attitudes and skills showed different associations with each of the perceived value-based tensions. The more multicultural knowledge teachers perceived to have, the less tension the teachers experienced, while the more multicultural skills they perceived to have the more tensions they reported to experience. We could not bring forward an explanation why skills related in a different way to value-based tensions than knowledge and attitudes did. No other explanation could be found either; internationally there has been little research on teachers in SSVET (Cedefop, 2009; OECD, 2010). In our above mentioned study on the relationship between teachers' characteristics and competencies and their experience of tension (Tielman et al., 2022), several personal and contextual characteristics, such as qualification levels, age, training need and training received, correlated with teachers' experience of value-based tensions. The question is whether looking at separate or combined factors across all teachers will provide an ultimate answer to our questions. Additional and different analyses may be helpful in this respect. The variables of interest (tensions experienced) may be present in different teachers to different degrees; therefore, a variable-based approach may not provide an uniform picture in terms of differences between teachers. In order to understand differences between teachers more in-depth, a person-centred approach may be helpful and is followed in the present study.

We were inspired by other research, not specific to SSVET, which has used a person-centred approach and found that teachers can experience very different levels of tensions. Pillen et al. (2013) classified beginning teachers into different profiles based on their experience of professional identity tensions. These profiles related both to specific types of tensions (e.g., dealing significant others, care-related tensions, responsibility-related tensions) as well as the amount of tension perceived overall (e.g., moderately tense teachers, tension-free teachers, and troubled teachers). They also found that these profiles were subject to change which implies that they can be reduced if teacher educators or mentors in schools provide support. Hence, for the present study it may be worthwhile to search for profiles in order to be able to interpret the considerable differences found between SSVET teachers with regard to experiencing value-based tension and to be able to provide appropriate support. To the best of our knowledge, no specific research has been done on the profiles of teachers in SSVET with regard to value-based tensions, nor on the aspects that influence the experience of those tensions. For school practice, having these profiles might enlighten that there are differences

within (i.e., between teachers) and between schools when it comes to teachers experiencing tensions and that a general situation cannot be assumed. Targeted training can then be set up for teachers with different tension profiles. The present study aims to profile teachers according to their value-based tensions, summarizing the different tensions experienced alongside each other into smaller pieces that are more accessible and easier to understand (Rickards et al., 2005), which may enhance reflection, consciousness and design of professional development approaches.

Person-centred analyses seek to identify unobserved subgroups of individuals who are comparable with respect to certain indicator variables (Muthén & Muthén, 2000). A person-centred approach will distinguish profiles of teachers with regard to their experience of value-based tensions. According to Rickards et al. (2005) reflection on teachers' competence may be enhanced if information regarding that behaviour is presented in profiles.

> *"Profiles are powerful tools for reflection because they can be used to conceptualize complex and interrelated information, (as is the case with competence elements and background characteristics with regards to the experience of value-based tensions) because they can summarize information into chunks that are easier to comprehend, and because they can stimulate associations with the teachers' own knowledge if they are accompanied with powerful labels" (p. 268).*

Such a reflection can be useful when creating an approach for teachers with those profiles, or for making others aware of differences.

In the present study, we adopt a profile approach to investigate how certain combinations of value-based tensions teachers experience and to see which combinations are more and less prominent. In addition, we examine whether the distinguished profiles differ with regard to their competences and background variables. This might help teachers to become more aware of their value-based tensions and make these explicit and also make it easier for teacher educators to recognize such tensions and prepare student teachers in dealing with them. For research it might reveal the specific role of skills.

To date, no specific research has been found on the profiles of teachers in SSVET with regard to value-based tensions, nor on the aspects that influence the experience of those tensions. Based on the survey data, this study aims to investigate, using a person-centred (e.g., profiling) approach, whether there are groups of teachers in which tensions occur together in certain combinations or not or whether teachers perceive tensions to a certain extent (cf. Pillen et al., 2013). In addition, we will examine whether the subgroups with distinctive teacher profiles differ in terms of their self-perceived competencies and background variables.

The following research questions will be answered:

1. What different profiles in teachers' value-based tensions can be distinguished among teachers teaching culturally diverse SSVET?

2. How do these distinguished profiles in teachers' value-based tensions relate to teachers' self-perceived competences?

3. How do these distinguished profiles in teachers' value-based tensions relate to teachers' background characteristics?

2   Methodology

To answer the research questions, this study relied on data from a questionnaire distributed to teachers of SSVET schools in the Netherlands. The questionnaire was based on an earlier study by the authors that investigated what value-based tensions were experienced by these teachers and what competence elements and background characteristics of these teachers influenced these value-based tensions (Tielman et al., 2022). Participants for the questionnaire study were acquired by approaching schools within the research team's professional networks, organizations representing the interests of teachers in SSVET, and professional journals to gain support for the study. They were informed of their voluntary participation and the confidentiality of treating their data. The survey was administered via Qualtrix. Three teachers completed a draft questionnaire to ascertain whether they could sufficiently recognize the tensions. This was the case and no changes were deemed necessary. From 20 different culturally diverse SSVET schools, 898 teachers participated in the survey. The teachers had a mean age of 44.3 years (SD = 12.5), and 58% were women. This is representative for Dutch SSVET, as the average age of the Dutch SSVET teacher in 2020 was 46.4 years and 57% were female (Ministerie van Onderwijs, Cultuur en Wetenschap, 2021). All background and context characteristics are presented in Table 2.

Table 2: Background and Context Characteristics (own compilation)

Background & context characteristics	Subcategories	%
Gender	Female	58
	Male	41
	Unknown	1
Ethic background		
Native[2]		51
Migration background[2]		49
Age (in Years, SD)		44.3(12.3)
Teaching expereince (in Years, SD)		11.3(9,95)
Teachers employed by city size (inhabitants)		27
> 300.000		63
> 100.000 and < 300.000		10
> 100.000		
Teaching certification		44
Teacher training program		56
Different or no certification		
Training multicultural education		62
received		51
need		

2.1   Measurements

The questionnaire used for this study was originally developed to measure the relationship between value-based tensions (based on Radstake, 2009) and competence elements (based on Spanierman et al., 2011; Ponterotto et al.,1998) and personal and context characteristics of teachers (Tielman et al., 2022).

With regards to the experience of value-based tensions *(diversity and communality, respect, justice, personal autonomy and professional ethics and stance)* respondents used a five-point Likert scale ranging from 1 being "almost never occurs" to 5 being "almost always occurs" to rate how often they had experienced tensions. A previous study (author) identified these value-based tensions as separate factors through factor analysis. For *diversity and communality* (Cronbach's α =.72, N of items = 4) a sample item was: "One or more students do not want me to interfere with the content of a row in class". With regard to *respect* (Cronbach's α = .65, N of items = 3), an example item was "one or more students do not respect my opinion as a teacher". For the *justice* scale (Cronbach's α = .65, N of items = 3), a sample item was: "One or

2   In this study we define the group of teachers with a migration background as teachers who were themselves born in a non-western country or had at least one parent born in a non-western country.

more students accuse me of discrimination". Concerning *personal autonomy* (Cronbach's α =.66, N of items = 3), an example item was "one or more students refuse to tell me the truth because they do not want to betray the person who did something". With regard to *professional ethics* and *stance* (Cronbach's α =.85, N of items = 10) an example item was "one or more students have difficulty carrying out certain professional tasks towards a specific target group because of their cultural background/beliefs". The Pearson correlations among the value-based tensions are presented in Table 3.

Table 3: Bivariate Correlations Between Value-Based Tensions and Competence Elements (own compilation)

		1	2	3	4	5	6	7	8
1	Diversity and Communality	--							
2	Respect	.696**	--						
3	Justice	.603**	.629**	--					
4	Personal Autonomy	.630**	.625**	.674**	--				
5	Professional Ethics and Stance	.624**	.637**	.534**	.549**	--			
6	Skills	.111**	.063	.048	.130**	.198**	--		
7	Attitude	.080	.039	.023	.079	.152**	.645**	--	
8	Knowledge	-.033	-.047	-.049	.032	.026	.553**	.401**	--

* = p < 0.05
** = p < 0.01

As Table 3 shows, the value-based tensions are positively correlated. These correlations indicate some overlap or high associations between the different tensions, but at the same time they also show sufficient distinctiveness of the different value-based tensions (Jong & Westerhof, 2001). Based on this reason, and on the fact that the tensions are conceptually different and distinct, and because a Principal Components Analysis in our prior study suggested different factors (Tielman et al., 2022), the different tensions will be treated as separate constructs.

To assess the elements of competence (*knowledge, skills and attitudes*) of the teachers, items were formulated on a five-point Likert scale with an answer format ranging from 1 "totally disagree" to 5 "totally agree". One example of an item for *multicultural knowledge* (Cronbach's α = .83, N of items = 6) was "I am knowledgeable of how experiences of various ethnic minority groups may affect students' learning". A sample item for *multicultural skills* (Cronbach's α = .89, N of items = 9) was "I often include examples of the experiences and perspectives of racial and ethnic groups during my classroom lessons". One example of the items

for *multicultural attitude* (Cronbach's α = .87, N of items = 8) is "To be an effective teacher, one needs to be aware of cultural differences present in the classroom".

Table 3 also shows the bivariate correlations between the value-based tensions and the competence elements. Multicultural skills had a significant correlation with the value-based tensions *professional ethics and stance* (r= .198, sig p< .01), *personal autonomy* (r= .130, sig p< .01), and *diversity and communality* (r= .111, sig p< .01). Between multicultural *attitude* and *professional ethics* and *stance* the correlation was r= .152 (sig p< .001). All correlations were small. Next, we determined the partial correlations of the perceived value-based tensions by stepwise linear regression with all independent competence variables and the teacher and context background variables combined.

Compared to the bivariate correlations the positive relationship between multicultural *skills* and *professional ethics* and *stance* increased and decreased *for diversity and communality*. Multicultural *skills* became positively correlated with *respect*. The more multicultural skills teachers reported to have, the more value-based tensions teachers experienced with regard to *professional ethics and stance* (standardized coefficient β = .183, SE= .038 p< .001), diversity and communality (standardized coefficient β = .121, SE= .041 p<. 05), and *respect* (standardized coefficient β = .116, SE= .046, p< .05) (see Table 4).

Table 4: Overview of the Extent of Relation Between Experienced Value-Based Tensions and Involved Variables (own compilation)

Variables		1.	2.	3.	4.	5.
Independent variables	Skills	.121* (.041)	.116* (.046)			.183*** (.038)
	Attitude	-.171** (.037)				
	Knowledge	-.104* (0.56)	-.175** (.041)	-.116* (.030)		-.162** (.034)

Variables:

    1. Diversity and Communality
    2. Respect
    3. Justice
    4. Personal Autonomy
    5. Professional Ethics and Stance

* = p < 0.05
** = p < 0.01
*** = p < 0.001
(Coefficients Std. Error)

In comparison with the bivariate correlation multicultural *knowledge* became negatively related with *respect*, *professional ethics and stance*, *justice* and *diversity* and *communality*. The less multicultural *knowledge* teachers reported to have, the more value-based tensions teachers

experienced with regard to *respect* (standardized coefficient β = -.175, SE= .041 p< .01), *professional ethics and stance* (standardized coefficient β = -.162, SE= .034 p<.01), *justice* (standardized coefficient β = -.116, SE= .030 p<.01), and *diversity* and *communality* (standardized coefficient β = -.104, SE= .056 p< .01).

Multicultural attitude showed no longer a significant correlation with *professional ethics and stance* but became negatively significant to *diversity and communality*. The less positive the attitude, the more value-based tensions they experienced with regard to *diversity and communality* (standardized coefficient β = -.171, SE= .037 p< .01).

Personal and context characteristics of teachers were included in the analysis as follows. Age was measured as the teachers' ages in years when they completed the questionnaire. Teachers' gender was coded as 0 = female and 1 = male. For the migration background of teachers a dichotomous variable (0 = migration background and 1 = native) was constructed. Teaching experience was measured by the number of years respondents had been working as a teacher, including the year in which the questionnaire was answered. For the variables teacher diploma and SSVET qualification level, dichotomous variables were constructed, respectively (0 = pedagogical didactic certificate[3] or other and 1 = teacher training diploma full-time/part-time) and (0 = qualification levels 1, 2, 3 and 1 = qualification level 4)[4].Training received was coded as 1 = yes and 0 = no. For the variable diversity in teacher population for each participating school the Herfindahl Index (Putnam, 2007) was calculated, considering the number and size of different ethnic groups. On average, schools had a teacher divers population score of .239 (SD = .184). For the analysis a dichotomous variable were constructed, (0 = schools with less diverse teacher population (M< .239)) and (1 = school with more diverse teacher population (M > .239)).

2.2   Analysis

A Hierarchical Cluster Analysis (HCA) was performed on the questionnaire data using SPSS version 27. We used HCA as a person-centered cluster analysis to identify subgroups of teachers that have a similar pattern of responses (profiles) with regard to the different value-based tensions *(diversity and communality, respect, justice, personal autonomy and professional ethics and stance)* that teachers experienced. HCA with squared Euclidean distances and Ward's method were chosen to ensure that teachers within a profile were optimally comparable and that different groups or profiles were optimally different. Solutions with two to seven clusters were tested in the search for the optimal number of profiles. For each cluster

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3 These are post-secondary education graduates with non-tertiary vocational training or graduates with tertiary vocational training but no teacher training who participate in a work-focused internship program leading to a teaching certificate with authority to teach exclusively in SSVET (Smulders et al., 2016). This internship program lasts 18 months and includes both pedagogical and educational topics.

4 This classification is based on the fact that in the Netherlands students with a migration background are more represented in levels 1 to 3 than in level 4 and that generally 50% of Dutch SSVET students follow level 4 (CBS StatLine, 2018).

solution, an analysis of variance (ANOVA) was performed with the distinguished clusters as the independent variable and each of the five value-based tensions as dependent variables. This way the variance explained by the solutions was established, based on which the optimal solution could be identified to answer research question 1.

Subsequently, we examined whether the distinguished profiles in the optimal solution as independent variables were related to the dependent competence elements *(knowledge, skills and attitudes)* by means of variance analyses to answer research question 2.

Furthermore, to answer research question 3, we examined the P-value of the Pearson Chi-Square by means of cross tabular analysis to determine whether the associations between the distinguished profiles and the personal and contextual characteristics *(ethnic background (native), gender, teaching diploma, training received, training need, qualification level and diversity in teacher population level)* were statistically significant. We conducted an analysis of variance to assess the associations with the ratio variables *age* and *teaching experience*.

3   Results

In the first part of the results section, we describe the different profiles in teachers' value-based tensions. Moreover, we examine in the second part the extent to which the distinguished profiles in teachers' value-based tensions are related to teachers' competencies. Finally, in the third part, we describe the extent to which the distinguished profiles in teachers' value-based tensions are related to teachers' background characteristics.

3.1   Different Profiles in Teachers' Value-Based Tensions (Research Question 1)

The results of the analysis suggested that a three-cluster solution was the best fit of the data based on the explained variance and interpretability of the solution. Overall, as indicated by eta-squared for all cluster solutions in table 5, solutions with more than 3 profiles explained little extra variance in teachers' tension ratings, whereas solutions with fewer than 3 profiles explained considerably lower amounts of variance. Moreover, in the 3 cluster solutions, each of the profiles appeared to be interpretable.

Table 5: Eta Squared for the Different Cluster Solutions (own compilation)

	2 clusters	3 clusters	Clusters 4 clusters	5 clusters	6 clusters	7 clusters
			Eta Squared			
Professional ethics and stance	.361	.477	.478	.601	.614	.648
Diversity and Communality	.429	.602	.637	.660	.668	.695
Respect	.458	.637	.686	.709	.714	.722
Personal autonomy	.338	.554	.654	.658	.710	.720
Justice	.421	.598	.625	.625	.660	.678

The identified 3 cluster solution were labelled according to the experience of value-based tensions by teachers. The results show that no particular tension stood out, but that all tensions in the groups increased per profile. The groups could thus not be labelled by referring to specific tensions. Cluster 1 corresponds to *relaxed* teachers, cluster 2 *rarely tense* and cluster 3 *reasonably tense* teachers. The characteristics of these three clusters are shown in Table 6 and graphically displayed in Figure 1.

Table 6: Cluster Sizes, Means (on Scale 1 to 5), Standard Deviations (Between Parentheses) and Eta Squared Coefficients for the Value-Based Tensions (own compilation)

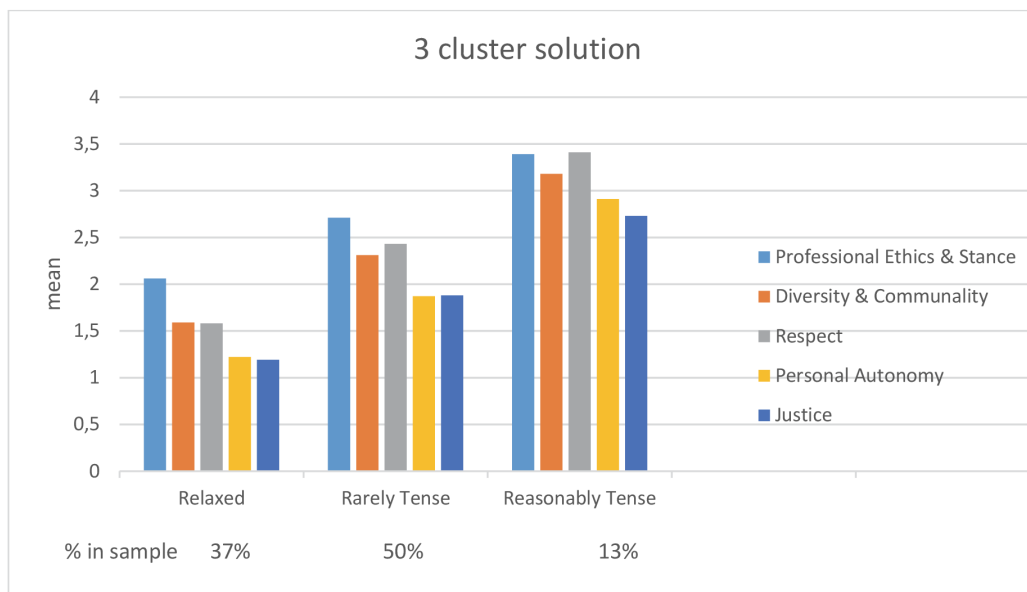|	Eta Squared	Clusters Relaxed	Rarely tense	Reasonably tense	Total sample
Cluster size		37%	50%	13%	100%
Professional ethics and stance	.477	2.06 (.50)	2.71 (.43)	3.39 (.41)	2.56 (.63)
Diversity and Communality	.602	1.59 (.39)	2.31 (.44)	3.18 (.41)	2.16 (.66)
Respect	.637	1.58 (.43)	2.43 (.46)	3.41 (.47)	2.24 (.74)
Personal autonomy	.554	1.22 (.29)	1.87 (.54)	2.91 (.62)	1.76 (.71)
Justice	.598	1.19 (.27)	1.88 (.43)	2.73 (.61)	1.73 (.64)

Figure 1: Graphical Display Showing Means for Each of the Three Profiles (own compilation)

The Eta Squared values for the three cluster solution were quite high. Professional ethics & stance had a score of .477, diversity & communality .602, respect .637, personal autonomy .544, and for justice the score was .598. This means that between 47 and 63 percent of all differences between teachers on the variables could be explained by this clustering solution.

As indicated by table 6, the first profile cluster (37% of the sample), labelled as *relaxed,* was composed of teachers who experienced all value-based tensions below the average of the total sample. The second profile cluster (50% of the sample), labelled *rarely tense,* consisted of teachers who experienced tensions that were slightly above the averages of the total sample. For the tensions of professional ethics and stance and respect, values were highest. The third profile cluster (13% of the sample), labelled *reasonably tense*, was composed of teachers who experienced all tensions far above the sample average. Professional ethics and stance had by far the highest average in the *low and rarely tense* cluster. In the *reasonably tense* cluster, professional ethics and stance had the highest average, after the tension of respect.

3.2 Extent to Which the Distinguished Profiles in Teachers' Value-Based Tensions Relate to Teachers' Competences (Research Question 2)

Next, we examined the relationship between the three-cluster solution *(relaxed, rarely tense and reasonably tense)* and the multicultural competence elements *(knowledge, skills and attitude)*. In contrast to skills, no statistically significant differences were found between the

profiles with regard to the competence perceptions in the area of knowledge and attitude. The means of the competence elements in the three profile clusters are presented in Table 7.

Table 7: Description of Means (on Scale 1 to 5), Standard Deviations (Between Parentheses) of the Profile Clusters in Terms of the Competence Elements (own compilation)

	Skills	Knowledge	Attitude
Relaxed	3.30 (.91)	3.00 (1.00)	4.00 (.72)
Rarely tense	3.52 (.77)	3.05 (.95)	4.10 (.70)
F_{asymp} (df1/df2)	5.394 (2/307.401)*	.218 (2/339.697)	1.620 (2/197.804

* = p< .01

At first glance, all three profiles seemed to report similar levels of *skills* and teachers with high and rarely tense profiles, respectively, perceived to have more *skills* than teachers with the relaxed profile. However, the post hoc test indicated that the mean differences were significant between the relaxed and rarely tense profile and the relaxed and reasonably tense profile, but not between rarely tense and reasonably tense.

3.3   Extent to Which the Distinguished Profiles in Teachers' Value-Based Tensions Relate to Teachers' Background Characteristics (Research Question 3)

We compared the distinguished profile clusters for background characteristics by means of cross tabular analysis. These results are presented in Table 8. As regards the significant associations, qualification level ($\chi2$ (2, N = 623) = .003, p< 01), training needed ($\chi2$ (2, N = 623) = .000, p< 001) and, training received ($\chi2$ (2, N = 623) = .000, p< 001) will be described for each cluster.

Table 8: Description of Percentage of the Background Characteristics of the Total Sample per Profile (own compilation)

	Relaxed	Rarely tense	Resonably tense
% Female teachers	34.5%	50.7%	14.8%
% Native	37.7%	49.4%	12.9%
% Qualification level 4*	38.6%	52.2%	9.2%
% Teaching diploma Teacher Institute	36.7%	52.5%	10.8%
% Training needed*	30.2%	54.7%	15.1%
% Training received*	28.7%	53.7%	17.6%
% Diversity in teacher population	34.8%	51.8%	13.4%

* significant associations

Most of the teachers who taught qualification level 4 were in the rarely tense cluster (52.2%) and the smallest group of teachers was in the reasonably tense cluster (9.2%). Of the group of teachers who indicated that they needed training, the largest group was in the rarely tense cluster (54.7%) and the smallest group in the reasonably tense cluster (15.1%). Most of the teachers that indicated that they received training (53.7%) were in the rarely tense cluster and the smallest group of these teachers were in the reasonably tense cluster (17.6%). Teachers with more tensions also had more need for training and received more training, and were less likely to teach SSVET qualification level 4.

The control variables teacher gender ($\chi 2$ (2, N = 623) = .329), being native or not ($\chi 2$ (2, N = 623) = .825), having a teaching diploma teacher institute or not ($\chi 2$ (2, N = 623) = .799) and, diversity in teacher population ($\chi 2$ (2, N = 623) = .438) were not statistically significant associated with the three profiles.

With respect to the ratio background variables *age* (p = .795) and *teaching experience* (p = .146), no statistically significant differences were found with the three profiles by means of an ANOVA.

To summarize, 3 profile clusters of value-based tensions were found in this study. The relaxed profile consisted of 37% of the teachers in the sample who experienced all value-based tension (professional ethics and stance, diversity and communality, respect, personal autonomy and justice) below average. They experienced the most tension in the fields of professional ethics and stance and the least in the area of personal autonomy. In terms of multicultural skills, these teachers scored below average, which means that the teachers in this group perceived to have fewer skills than the average teachers in this study. Most teachers (65%) in this group taught at the highest qualification level of SSVET. Half of the teachers (50%) indicated that they needed training in multicultural education, while 30% reported that they had already received training.

The rarely tense profile consisted of half of the teachers from the sample (50%). Teachers with this profile experienced the tensions slightly above the average. Professional ethics and stance was the most experienced tension followed by the tension of respect. These medium profile teachers scored slightly above average on multicultural skills. Almost two-thirds of teachers (65%) with this profile taught at SSVET qualification level 4. Of the teachers in this group, 67% indicated a need for training and 42% received training.

The reasonably tense profile was composed of 13% of the teachers in the sample. They experienced all tensions far above the average with the highest score for professional ethics and stance after respect. In terms of self-perceived skills, these teachers scored highest of all the distinguished profiles. Just over half of the teachers (55%) with this profile taught the lower levels of SSVET and received training (54%). Of the teachers with this profile, 73% indicated a need for training.

4   Discussion and Conclusion

This study aimed to profile teachers according to their value-based tensions and to determine whether the distinguished profiles were related to teachers' self-perceived competences and their background characteristics.

Based on a cluster analysis of the questionnaire data from 891 teachers of 20 culturally diverse SSVET schools it appeared that these teachers could be classified into three different profiles, namely: *Relaxed, rarely tense* and *reasonably tense*. We found that all 5 tensions were strongest in the reasonably tense cluster, moderate in the rarely tense cluster, and lowest in the relaxed cluster. This pattern does not challenge our previous explanation of why we deem it useful to distinguish between the different tensions. It rather indicates that in the optimal cluster arrangement (with three clusters), all types of tensions correspond in intensity in the different clusters. Apparently, people generally experience the different tensions more or less to a similar degree.

We found no clear profiles based on the type of tension or particular clusters of tensions. This is partly in line with another study on profiles (Pillen et al., 2013) where the tensions in some profiles also increased simultaneously and no specific tension prevailed – although their study also found other profiles that could be interpreted thematically. One explanation may be that SSVET schools as a whole are changing and that there is little training on the topic of multicultural teaching. The current study suggests that the culturally diverse student population creates tensions for teachers in SSVET and - depending on the type of profile - for some teachers more than others. Comparing the three profiles on multicultural skills, it is notable that teachers with the relaxed profile report having fewer skills than teachers with medium and reasonably tense profiles, while the latter experience more tensions. In that sense, the current findings confirm, replicate and extend our previous study that was variable based (Tielman et al., 2022). Current study indicates much more precisely that those who do not (yet) experience so many tensions across the board (37% of the total sample) also do not (yet) possess many skills. In contrary, the result that perceptions of more multicultural skills go together with higher tensions experienced is noteworthy and inconsistent with the literature which states that teachers who possess multicultural skills tend to do better in culturally diverse classrooms (e.g., Deardorff, 2009; Paccione, 2000; Taylor & Quintana, 2003). A potential explanation for this results of the present study is that teachers with more multicultural skills may be more aware of and sensitive to tensions and more likely to recognize them (Leeman, 2006). On the other hand, teachers with more skills may be more daring to experiment in their lessons and may experience less tensions in the process (or be less affected by them).

Along the same lines, teachers in the reasonably tense profiles reported to have had more training on the topic of multicultural education. These teachers also have the highest scores on self-perception of skills. The fact that they have the most training could explain why they

must have acquired skills in their own opinion. Perhaps more training has made teachers more aware of and receptive to tensions.

Remarkably, the same teachers who received (more) training and experienced more tensions also indicated that they needed training the most. Perhaps in this case they would like to have additional training because of greater awareness of tensions they experience or perceived gaps in their expertise. The teachers with a reasonably tense profile work mainly in the lower levels of the SSVET. The student population in the lower levels of the Dutch SSVET is even more diverse than in the higher levels. These students have very different starting education levels and background characteristics compared to the students in the higher levels and very specific needs that require a different approach from teachers (Groeneveld & Van Steensel, 2009; Lesterhuis, 2010). Relationship of trust, clear structure and direction are very important for students at these lower levels (Lesterhuis, 2010). Teachers at lower levels have to provide more guidance and direction to their students and are therefore closer to their students, making them more likely to notice and experience the cultural differences.

Professional ethics and stance, previously found to be most common in culturally diverse SSVET (Tielman et al., 2022), is one of the most frequently experienced value-based tensions in all three profiles. This finding confirms that all these teachers, who are confronted with a wide variety of beliefs and value orientations, experience conflicts with regard to their own norms, values and convictions and those of their students on the one hand (Banks, 2004; Leeman, 2006; Veugelers & Kat, 2003), and the standards of the labor market with its own specific requirements for professional ethics and stance as a third party on the other (Tielman et al., 2022). Earlier, Wesselink et al. (2010) noted that these three stakeholder groups (student, teacher, and labour market) are important for the integration of occupation and education but hold different visions of professional ethics and stance. Value-based tensions on professional ethics and stance, as identified by Tielman et al. (2021), could have an additional impact on this process in culturally diverse SSVET. Especially since the labour market with its own professional perspectives is added as an significant other (Pillen et al., 2013). Teachers in SSVET schools have been found to struggle to get students to develop professional ethics and attitudes as part of professional identity, in addition to developing subject knowledge and professional skills (de Bruijn et al., 2006; Glaudé et al., 2011). Consideration of the established struggle of SSVET teachers with professional ethics and stance may help to improve the connectivity between the three above mentioned stakeholders even more in the future. As shown above, the value-based tensions evoked in SSVET are very different from those in general education where the vocational component is not included (e.g., Leeman, 2006; Radstake, 2009; Tielman et al., 2021; Versteegt, 2010).

In contrast to other studies, the present study found that some background and context characteristics did not correlate significantly with the distinguished profiles. Gender and age of teachers were equally divided among the profiles, whereas in previous research the

correlation with experience and value-based tensions by SSVET teachers was found to be significant (Tielman et al., 2022). This is also true for teaching experience. In contrast to the outcome of previous research regarding the experience of tensions by novice teachers (e.g., Meijer, 2011; Pillen, 2013), teachers with certain (lack of) experience in the current study were not identified in a particular profile. Similarly, schools with a more diversified teacher population, which in a previous study correlated with experiencing value-based tensions (Tielman et al., 2022), were not related to any of the profiles in particular in the current study.

4.1   Implications for Research and Practice

First, some limitations are discussed and then the implications of this study. From the data of this questionnaire alone it is not possible to determine whether teachers in the same profile experience the same situations as potentially tense and/or with what intensity they experience the tensions. For further research, a mixed methods approach is recommended with, in addition to the questionnaire, an in-depth interview for more information to further describe and interpret the profiles as well as to determine the possible changes that may take place. Studying the extent to which profiles change over time could provide insight into the development of the value-based tension profiles and their characteristics (cf. Pillen et al., 2013). Furthermore, in-depth interviews may also uncover the extent to which professional ethics and stance tensions, which are most common in almost all profiles, determine teacher behaviour or other aspects of their teaching. For further research, it would be interesting to investigate how internally experienced tensions are expressed/revealed in the interaction between teachers and their students and the students' subsequent response and reflection to enhance their development of professional ethics and stance (den Boer, 2009; Meijers et al., 2006). Experiencing tensions can lead to the development of burnout (Dubbeld et al., 2019). Whether or not the relationship between experiencing these specific values-based tensions and dropping out of teaching or experiencing burnout is apparent, would be very valuable research for teaching culturally diverse SSVET classes in the light of high drop-outs numbers and personnel shortages.

We also suggest that follow-up research should take into account school demographics in a balanced sample. In the current study, we observed some differences between schools that could not be interpreted as a result of a very unbalanced sample, caused by large differences in participation of schools in different parts of the country.

The results of the present study provide empirical support for profiles of teachers with respect to their value-based tensions and determined whether the distinguished profiles are related to their self-perceived competences and their background characteristics. The remarkable findings that teachers in this study with more multicultural skills experienced more tension and that, at the same time, more training also evoked more tension is the subject of

further research. This result shows possible underlying mechanisms and needs further explanation. An interesting question would be to see if the training focused more on skills and less on knowledge of, for example, the different cultural backgrounds.

The distinguished value profiles in this study are summarized with labels and interpretations, making them hopefully easy to understand (Rickards et al., 2005). The fact that all tensions appear in the profiles and that none of them stand out in a particular profile shows that all tensions should be included in the training. Because professional ethics and stance is more common, and respect in some cases too, these are the two tensions that need some extra attention in the training. Furthermore, the results show that teachers in the lower levels experience more tensions, so there should be more intensive training at these levels. Although the profiles have clear benefits for the development of a personalised approach to teacher education and for the professional development of teachers in SSVET, the profiles found in samples may be context dependent, so the profiles and findings of this analysis should be generalised to other populations with some caution. To use the results of profile analyses for designing specific practical interventions, it is more appropriate to examine the profile structure in the local target population (Kusurkar et al., 2021).

For teacher educators, the profiles can be useful as a reflection tool during study and professional development, as different groups of teachers have been distinguished and some groups need extra training in all the tensions. Training should focus on the separate components of competence. Perhaps training could focus first on awareness and next on knowledge and attitude as a basis for further skills development. Awareness should then relate to teachers' own level and experience, as well as the context in which one operates (e.g., vocational context). Teachers should be aware of the differences in values and norms with their students, be aware of their own value, norms and abilities and of values and norms of the labor market. Since the lower SSVET levels involve more stress, perhaps that would be a good context to start with such a training. The profiles and value-based tensions provide a language for such reflection (Pillen et al., 2013) and continuing to discuss them will help raise awareness. Moreover, with the same purpose, these profiles can be used well in SSVET schools where current teachers are often lumped together with respect to experiencing of tensions while three different profiles can be distinguished with specific attention to the professional ethics and stance. The teachers with the different profiles could support each other in the process of coping with the value-based tensions. Vocational education varies internationally from being very much embedded in the vocational context to being more school-based (Rözer & van de Werfhorst, 2020). Depending on the degree of practicality, professional ethics and attitudes will emerge differently. The results of this study may be of general interest to SSVET taking the level of integration with vocational practice into account.

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