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Does teachers' spirituality make a difference? The explanatory value of spirituality and religiosity for teachers' professional beliefs on teaching and learning

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Abstract

While it is often theoretically presumed, that religious and spiritual beliefs are important determinants for teachers' professional thinking and acting, there is only scarce empirical evidence of this. Using structural equation modeling explain professional beliefs about teaching and learning among N = 1,441German schoolteachers, our study yielded virtually no explanatory value for religiosity, but certainly one for non-transcendet spiritual beliefs as predictors. Our research results differ from findings in some studies from the U.S. that showed substantial correlations between teachers' religious and professional beliefs. Some possible reasons are reflected in the discussion section.

Keywords:

teacher beliefs; religiosity; religious education; spirituality; self-efficacy

Highlights

- Teachers' religiosity and spirituality are weakly related to professional beliefs.
- "Connectedness with oneself" explains the sense of professional self-efficacy.
- "Connectedness with others" explains an idealistic self-concept.
- "Connectedness with others" explains student-centered attitudes.
- Control variables/factors explain teachers' professional beliefs to some extent.

Introduction

Do teachers' personal religious or spiritual beliefs affect their professional thinking and acting? And if so, how? This is a pivotal question in an ongoing public debate worldwide (see e.g. for Canada: Barrett, 2015; for Egypt: Mansour, 2015; for Indonesia: Novitasari et al., 2020; for Latin America: Kurian et al., 2016; for the Netherlands: Markus et al., 2021; for South Africa: Martin, 2020). Some claim that teachers' religiosity or spirituality are supporting resources for teacher-student interaction, which should be mobilized in democratic, human-rights-based countries (see e.g. Sikkink, 2010); others consider them as problematic disruptive and manipulative factors, being skeptical to the notion that teachers should have the right to bring their religious views into a public school committed to religious neutrality (see e.g. Franken, 2016). In any case, as teachers are confronted with students, parents, and colleagues from different cultural and religious backgrounds on a daily basis, self-reflection of the connection between the beliefs related to their own religion or worldview and public education seems to be a necessity as well as a basic competence for teachers. While the relevance of teachers' religious orientations to their pedagogical work are asserted by both religious representatives and their critics, it has hardly been empirically studied. Most empirical studies regarding relations between teachers' religious and professional beliefs originate from the U.S. (see e.g. Hartwick, 2007; Higher Education Research Institute, 2005), are based on small samples and employ qualitative methodology (see e.g. Baurain, 2012; Kang, 2009; White, 2010; Lipmen, 2017; Nelson-Brown, 2007). Thus, it is the aim of the present study to address this research deficit by a larger quantitative study with differentiated measuring instruments among school teachers with either Christian or no religious affiliation within in the German context. On the one hand, we assume that this broadening of the research approach will provide deeper insights into typical constellations in the relationship between teachers' religious and professional beliefs that will be relevant for other cultural contexts, too. On the other hand, we suspect that the specific situation in Germany concerning the relatively low rates of religious people among the population together with a pronounced secular understanding of educational science may result in differences against the U.S. and other strongly religious countries. Before reporting the applied methods and results, we present its theoretical basis and report the main findings of the current international state of research (for a complete overview on the topic see the literature review from Häusler et al. from 2019).

Theoretical background

Teachers' professional beliefs

The growing research on teachers' beliefs over the past twenty years yielded consistent evidence that beliefs provide explanatory value for teachers' professional thinking and acting, even though the precise ways in which beliefs impact on professional practice have not yet been sufficiently clarified. We mainly build on the theoretical perspectives of Fives and Buehl (2012) and Buehl and Beck (2015). Fives and Buehl (2012) have developed a plausible, empirically backed model on how teacher beliefs may become relevant for teacher practices as filters, frames and guides (p. 478). Their analysis that teacher beliefs form a system in which they interact with other, not directly profession-related beliefs has been deepened and differentiated in Buehl and Beck (2015). Here, beliefs are conceptualized as complex and partly congruent, but also partly incongruent systems. Already in Fives and Buehl (2012) the authors point to a research deficit regarding the interrelations of diverse kinds of beliefs: "Despite the widespread agreement that teachers' beliefs exist in a system, few empirical investigations have examined beliefs as complex systems" (2012, p. 477). Similarly, McAlpine et al. contend that "[e]ducational beliefs are a substructure of the total belief system [of a person] and must be understood in terms of their connections to other, perhaps more influential, beliefs" (1996, p. 392). Religious and spiritual beliefs can be regarded as such "other, perhaps more influential" beliefs that can be expected to be connected with teachers' professional beliefs, showing more or less congruence with them.

In the context of this work, it seemed appropriate to us to use the following differentiation of teachers' professional beliefs in four facets: (a) subjective theories about learning and teaching, which includes, among others, teachers' attitude towards dealing constructively with mistakes, i.e. a positive error culture, and teachers' focus on the individual needs of their students (a pronounced social orientation), (b) person-related beliefs about students, (c) person-related beliefs about the role of the teacher, which includes among others teachers' idealism and their sense of self-efficacy, and (d) context-related beliefs about the tasks and functions of schools (Reusser, et al., 2011, pp. 486–487; note that there are also other classifications of teachers' beliefs, see e.g. Domović, & Vidović, 2019). In the present study, we focus on the aforementioned subfacets of (a), i.e. teachers' positive error culture, their social orientation, and (c), i.e. their idealism and their sense of self-efficacy. We chose these

four aspects, because they show a certain theoretical affinity to religious or spiritual beliefs as we will contend in the following sections.

Attitude towards positive error culture

Empirical research has shown that a tolerant attitude and supportive reaction of teachers to students' mistakes has positive effects on their learning outcomes and their well-being (see e.g., Käfer et al., 2019; McMillan, 2017; Seifried & Wuttke, 2010). In Christianity as well as in other major faiths, believers hold that mistakes ("sins") can and should be forgiven and regarded as an opportunity to learn from. Consequently, it can be assumed that religious teachers find (additional) support of a positive error culture in their religious beliefs.

Orientation to the individual students

This concept "indicates a student-centered organization of teaching that takes into account the individual needs of the students." (Gerecht et al., 2007, p. 47). A positive influence on the students' self-concept and motivation is assumed (see also Connell et al., 2017). Normative concepts from the context of Christian education claim that Christian teachers should take special care of their individual students and regard every single one of them as a unique creation in the image of God (see e.g. Sikkink, 2010). There is evidence from a US-American study among more than 40,000 college professors that shows a positive correlation of high spirituality levels with particular pedagogical orientations such as 'Focus on Students', Personal Development' or 'Student-Centered Pedagogy' (Higher Education Research Institute [HERI], 2005, p. 7).

Professional idealism

Several studies on teachers' professional beliefs and their motivation have provided evidence that those teachers who have chosen their career out of intrinsic motivation and practice it out of inner conviction as well as with holistic commitment tend to show higher job satisfaction, lower risk of burnout and more success in their educational work with students (e.g. Han & Hongbiao, 2016; Ortenburger, 2010). In Christianity and other major faiths career choice tends to be regarded as a decision made out of inner conviction, often with a sense of following a calling by God (Röhl & Pirner, 2020; Serow, 1994). Therefore, it can be assumed that highly religious or spiritual teachers tend to show an idealistic attitude towards their

profession.

Professional self-efficacy

Empirical research shows that teachers' self-efficacy, "namely teachers' beliefs in their ability to effectively handle the tasks, obligations, and challenges related to their professional activity, plays a key role in influencing important academic outcomes (e.g., students' achievement and motivation) and well-being in the working environment" (Barni et al., 2019, p. 1). It can be assumed that religious or spiritual teachers may show a higher sense of self-efficacy, because their self-confidence is supported by their belief to be called, gifted and supported by God in what they do. Although research on possible links between religiosity and self-efficacy has shown inconsistent results, there are hints that religious people may show a stronger sense of (general) self-efficacy (Abdel-Khalek & Lester, 2017; Byrne, 2012) and that teachers' religiosity may have a positive effect on their sense of self-efficacy on the job (Wright, 2010).

Religious and spiritual beliefs

Religious beliefs can be conceptualized as a central component of a person's religiosity, which can very generally be understood as "the individual, subjective side of religion - in contrast to 'religion' as an objectively given . . ." (Bochinger, 2004, pp. 413–414). On the one hand, religiosity is related to religions as cultural quantities, on the other hand to the anthropologically based openness of humans for "existential ultimate questions", "ultimate horizons" or for "transcendence" (Pirner, 2014, p. 64). In view of widely deplored definition problems (see e.g. Kapuscinski & Masters, 2010), in this study, we follow Stefan Huber's concept of religiosity and of religious beliefs, which is the basis of his Centrality of Religiosity Scale (CRS) that has widely been adopted in the research of multiple academic disciplines (Huber & Huber, 2012). This concept of religiosity combines mainly psychological and sociological theories (primarily Allport & Ross, 1967, and Glock, 1973) and contends that religious beliefs express and manifest themselves in five major dimensions of the believer's life, namely intellectual interest, ideology (the content of religious faith), private and public practice (prayer, church service) as well as religious experience. By referring to this multidimensional concept and measurement instrument of religiosity, the validity and reliability of measuring religious beliefs can be significantly improved.

In analogy to the argumentation just presented, we understand *spiritual beliefs* as a core component of the multidimensional phenomenon of spirituality. It is, however, even more difficult to find a clear, generally accepted definition for spirituality than for the term religiosity (MacDonald, 2000; Meezenbroek et al., 2012). It denotes a multitude of variants for the search for meaning, the longing for transcendence and the deepening of life - in varying degrees of proximity to religion or even completely detached from it. In research, the transitions between the two concepts of religiosity and spirituality are fluid, especially in the English-speaking world. The reason why we include the concept of spirituality in addition to religiosity is that an increasing number of people in pluralist societies are reported to identify as "spiritual", but not necessarily as "religious" persons. Obviously, "spirituality" or "spiritual beliefs" indicate a greater distance to religions and their strong transcendental dimension while still addressing the above-mentioned anthropological quests for meaning and orientation in life as well as for ultimate horizons. Thus, we have conceptualized religiosity and spirituality as two overlapping concepts and hypothesized that both the religious and spiritual beliefs of teachers can be linked with their professional beliefs. In our search for a theoretically sound, empirically tested, multi-dimensional and rather religion-distant concept of spirituality we were convinced by the Spiritual Attitude and Involvement List (SAIL) developed by Meezenbroek et al. (2012). In their explicitly "non-theistic approach" they define spirituality as "one's striving for and experience of connection with the essence of life, which encompasses three main dimensions: connectedness with oneself, connectedness with others and nature, and connectedness with the transcendent" (Meezenbroek et al., 2012, p. 142). SAIL was developed for the use in samples comprising both religious and non-religious persons. Similar to religious beliefs in the CRS, in SAIL, spiritual beliefs in the narrower sense of beliefs are seen to interact with and are therefore linked with intellectual, experiential and practical dimensions, which implies a broader and richer concept of spiritual beliefs.

Beyond distinguishing religious from spiritual beliefs, research on religiosity has focused not only on assessing its intensity (or centrality, as coined by Huber & Huber, 2012) but also on its various forms, which can have differential effects on numerous criteria. This applies in particular to the distinction between fundamentalist-intolerant versus liberaltolerant manifestations of religiosity, with the latter showing the more preferable effects (see e.g. Pickel et al., 2020; Zwingmann et al., 2017). Therefore, we specifically included a scale representing religious tolerance in the survey.

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Relations between teachers' religious or spiritual beliefs and their professional beliefs, and potential moderators

Several studies showed that for highly religious or spiritual persons, religious and spiritual beliefs are central within their personal belief system (e.g. Huber, 2003, 2007; Klein et al., 2010). This finding corresponds with the claim of almost all major religions that religious faith should permeate the whole life of the believers and determine the way they shape their life. According to this theological logic, teachers' professional thinking and acting should be influenced by their religious beliefs. Theological reflection, however, also differentiates between different modes of how religious beliefs influence the believers' lives in different domains. For instance, already Martin Luther's classic two kingdom's doctrine contends that a difference must be made between church life or personal life on the one hand and public or political life on the other hand (see e.g. Bornkamm, 1966). Religious beliefs must be translated or transformed in a way that does justice to the specific context: You cannot rule a state just by the commandment to love your neighbor - nor can you manage a classroom solely by this ethical principle; but maybe you can do both in a more humane and compassionate way guided by religious beliefs. Theological concepts from Christian social ethics or approaches such as public theology take account of such insights (see e.g., Pirner et al., 2019). They can also be applied to the more open concepts of a non-theistic spirituality. These deliberations advise caution against expecting too direct and strong impacts of religious or spiritual beliefs on teachers' professional thinking and acting. From a psychological perspective, religious or spiritual beliefs are usually rather general and comprehensive, relating to the whole person, whereas the professional beliefs are narrower and more restricted to the professional field of action. While this may limit the effect sizes of relations between the two types of constructs due to symmetry issues (Zech et al., 2017), it nevertheless implies that both types of beliefs may be related to each other, given their potential relevance at school as a field of action. Therefore, the stronger religious or spiritual beliefs are, the more they should affect professional beliefs.

We expect that potential relationships between teachers' religious and professional beliefs can also be moderated by *contextual factors* such as the type of school they teach. Special education and elementary school teachers are more likely to pursue educational and personality development goals that have a greater proximity to religious orientations than teachers in other types of schools. Since references between religious and professional teacher beliefs are more strongly promoted in denominational, faith-based schools than in state schools, the denominational character of schools could be a moderator variable as well. Furthermore, teachers with Religious Education as a subject should have a strong sensitivity to references between religion and school in general as well as between religiosity and teacher professionalism in particular. Finally, depending on the attitude of school management and/or staff to religion in the school, a religion-friendly school culture will presumably have an effect on the willingness of teachers to bring their religious beliefs into school and teaching.

Potential *subjective factors* of influence could be teachers' beliefs regarding the relation between their profession and religion (according to Pirner & Wamser, 2017). The more strongly a teacher believes that the presence of religion in school is not legitimate (context-related) and that it is more appropriate not to bring their own religiosity into school (person-related), the lower the correlations between their religious and job-related beliefs are likely to be. There is also evidence in research that the teachers' sense of calling (especially the sense of being called by God to the profession of teaching) is also reflected in teachers' professional attitudes (Hartwick, 2007; Penthin et al. 2022; Röhl & Pirner, 2020).

Research question and hypotheses

How are schoolteachers' religious and spiritual beliefs on the one hand and their professional beliefs on the other hand related? To answer this research question we derived the following pre-registered¹ hypotheses from our theoretical deliberations, from preceding research findings and from two pilot studies (Penthin, Kröner et al., 2022; Pirner & Wamser, 2017; see Figure 1 for an overview of all variables used):

(1) The stronger the teachers' religious or spiritual beliefs are, the more positive is their attitude towards a positive error culture.

¹ See hypotheses 3.2 to 3.5 and 4.1 to 4.4 as well as the specification of the moderator effects to be tested for all hypotheses listed at <u>https://osf.io/c5j96</u>. We have adjusted the order of the hypotheses to the order of reporting as well as the wording of the hypotheses to the terminology used in this article without changing their content.

- (2) The stronger the teachers' religious or spiritual beliefs are, the stronger is their orientation to the individual students, emphasizing their personal relationship and devotion to the pupils.
- (3) The stronger the teachers' religious or spiritual beliefs are, the stronger is their professional idealism, i.e. the more they are inclined toward an idealistic image of the teaching profession, for which inner conviction and holistic commitment are important.
- (4) The stronger the teachers' religious or spiritual beliefs are, the higher are their (professional) self-efficacy expectations.

Moreover, we explored main effects and moderation effects of contextual factors and subjective factors on the relationships between religious-spiritual and professional beliefs of teachers:

- (5) (a) at special schools or primary schools vs. other teachers
 - (b) at denominational (faith-based) vs. non-denominational schools,
 - (c) with vs. without Religious Education as a subject, and

(d) at schools where the school climate is assessed as friendly to religion vs. religionunfriendly

- (6) Teachers' beliefs regarding the relation between their profession and religion: the more teachers affirm the personal relationships between religiosity and the teaching profession or between religion and school culture, the stronger are the correlations between their religious/spiritual and their profession-related beliefs.
- (7) The more strongly the teachers feel a sense of calling to their profession, the stronger are the correlations between the teachers' religious or spiritual and professional beliefs.

Gender, school authority (private vs. public), years of service, denominational affiliation, affinity to the teaching profession, and perceptions of student heterogeneity serve as control variables to exclude other influencing factors and are tested for all professional beliefs. We have not hypothesized about these variables in advance.

Beyond this, in all analyses addressing the pre-registered hypotheses, we additionally explored the incremental explanatory value of religious tolerance as a form of expressing religiosity, as there is recent evidence regarding a unique explanatory value of religious tolerance on the professional ethical beliefs of teachers (Penthin, Christ et al., 2022).



Figure 1. Schematic representation of the variables used in the study, grouped according to religious-spiritual beliefs, professional beliefs, and potential moderator variables (contextual factors and subjective factors) as well as control variables.

Materials and methods

Sample

The data² were collected from September until December 2019 via online (n = 1,355) and paper-based (n = 179) questionnaires. Most of the 1,534 participants were recruited through direct contact with schools in the German federal states of North Rhine-Westphalia, Saxony and Bavaria. In addition, attention was drawn to the survey through personal contacts of the authors to teachers and school authorities, in teacher training courses and at conferences. These gatekeepers were instructed to give the questionnaires or the link to the study only to the relevant fully trained teachers individually. The focus of the sampling was on general

² Data of all variables included in this paper, all scripts and outputs as well as a codebook including all scales involved in the project are available as supplementary material online at https://doi.org/10.17605/osf.io/wa6bn.

education schools, but we also included special schools because in them the goals of individual support for the disadvantaged as well as a comprehensive personality development are particularly central, which show a proximity to religious motives. Since finally there were only 22 people of non-Christian religious affiliations in the sample, this study focuses only on the group of participants who belong to a Christian denomination (n = 1,168; n = 555Catholic, n = 551 Protestant mainline, n = 21 Protestant free church/Pentecostal-charismatic, n = 8 other Christian denominations; n = 30 missing) and on the group of participants with no religious affiliation (n = 273). Therefore, the sample consists of N = 1,441 German schoolteachers with the vast majority teaching in non-denominational schools (n = 1,170) and with 1,289 of the participants teaching at schools run by public school authorities. About one third teach Religious Education as a subject. For further details on the sample and the sampling procedure see Appendix and Table A1 provided there.

Statistical analyses

Since the questionnaires were based on a booklet design (see appendix), multiple imputations via predictive mean modelling were carried out for the following analyses. All analyses were conducted in R (version 4.1.0) using the packages "lavaan" (Rosseel, 2012) and "mice" (van Buuren & Groothuis-Oudshoorn, 2011). We used p = .05 as significance level and treat effects of r or $\beta \ge .20$ as substantial for all analyses.

To test our hypotheses, in a first step, we used confirmatory factor analysis (CFA) to assess factorial validity of the items and discriminant validity of the constructs (see Table 1). Building on this, we applied structural equation modeling (SEM) to investigate the explanatory value – that is, the importance – of religious (see Figure 2) and spiritual beliefs (see Figure 3) for professional beliefs. For the final model (see Table 2), we included only those contextual factors, subjective factors, or control variables that showed statistically significant effects on at least one of the four professional beliefs in the preliminary analyses (for details on the relevant contextual factors, subjective factors, their moderating effects and on the relevant control variables see the appendix and supplementary material 1 and 3 available online at https://doi.org/10.17605/osf.io/wa6bn).

Variables and factorial structure of the scales

Religious and spiritual beliefs

Centrality of Religiosity Scale. The CRS refers to five core dimensions of religiosity: public practice (e.g. "How often do you take part in religious services?"), private practice (e.g. "How often do you pray?"), religious experience (e.g. "How often do you experience situations in which you have the feeling that God or something divine intervenes in your life?"), ideology (e.g. "To what extent do you believe that God, Deities or something divine exists?") and an intellectual dimension (e.g. "How often do you think about religious issues?"). In the present paper, we restricted ourselves to items of the CRS-5 (Huber & Huber, 2012, p. 717), since we were not interested in using a second order model (as would be possible with CRS-10 or CRS-15) and we did not focus on other religions than Christianity. Items concerning the frequency of prayer (six level answer scale) and participation in religious services (eight level answer scale) were recoded into five score levels according to Huber and Huber (2012, p. 720) with higher values representing higher religiosity. The CRS was modelled as one factor (including residual correlations between items relating to public and private practice), it showed excellent fit and good reliability ($\omega = .88$).

Religious tolerance. Teachers' attitudes regarding general openness to religious or ideological positions were surveyed with a scale of three items such as "The increasing diversity of religious and ideological groups in our society is a cultural enrichment." ($\omega = .70$, response format: *do not agree* (1) to *fully agree* (5), Traunmüller, 2014, p. 72).

Spiritual Attitude and Involvement List. This instrument consists of seven subscales that assess three core dimensions of spirituality: *connectedness with oneself, connectedness with others and nature* and *connectedness with the transcendent* (Meezenbroeck et al., 2012, p. 161). Of each core dimension, we included one or two subscales – those with the closest proximity to teachers' professional beliefs: we assessed *connectedness with the transcendent* (four items) via items such as "I have had experiences in which all things seemed to be part of a greater whole." from the subscale "transcendence experience". *Connectedness with oneself* (seven items) via the two subscales "meaning" and "trust" with items such as "My life has

meaning and purpose." and "I approach the world with trust.". *Connectedness with others*³ was assessed with the subscale "caring for others" (four items), which includes questions such as "It is important to me that I can do things for others." .In its original version, the SAIL items are based on a Likert-type rating scale ranging from *not at all* (1) to *to a very high degree* (6) and from *never* (1) to *very often* (6) for the subscale "transcendent experience", respectively. To adapt the items to the remainder of our questionnaire, we adjusted the original six-level Likert-type rating scale to a five-level Likert-type rating scale (*not true at all/never* (1), *rather not true/rarely* (2), *uncertain/sometimes* (3), *rather true/often* (4), *completely true/always* (5), respectively) in analogy to the CRS. The item "I have had experiences in which I seemed to merge with a power or force greater than myself." was excluded from the analyses (for details see appendix).

According to Meezenbroek et al. (2012, p. 161), we modelled the SAIL as a threefactor solution with "connectedness with oneself" ($\omega = .79$, subsuming the original subscales meaningfulness and trust), "connectedness with others" ($\omega = .68$, caring for others) and "connectedness with the transcendent" ($\omega = .72$, transcendent experience), which resulted in good model fit (see Table 1). Residuals between some of the items within the same factor were allowed to correlate (see online supplement 2 available online at https://doi.org/10.17605/osf.io/wa6bn).

Contextual factors

We used the following variables to assess whether influencing factors relevant in the present context moderate the relationships between religious-spiritual beliefs and professional beliefs: school type special school, school type primary school, denominational character of the school, and Religious Education as a teaching subject (dummy-coded: *no* (0), *yes* (1)). Open-mindedness towards religion in school was measured using a self-developed scale called "Religion-friendly school climate" (three items, $\omega = .73$, sample item: "The school administration at my school supports school services or similar religious offerings.", response-format: *does not apply at all* (1) to *fully applies* (5)).

Subjective factors

³ The subscale "connectedness with nature" was included in the questionnaire, but skipped in the analyses because it only comprised two items and its content was not deemed relevant for the study of professional beliefs about learning and teaching.

Teachers' beliefs regarding the relation between their profession and religion (Penthin, Kröner et al., 2022) were assessed with four items each using a five-point response format (*fully disagree* (1) to *fully agree* (5)). Subscale 1 elicited personal beliefs about the role of one's religiosity in relation to the teaching profession (e.g.: "I find it good and useful to bring my worldview or religious attitude into my thinking and acting as a teacher.", $\omega = .79$). Subscale 2 asked for contextual beliefs about the relationship between religion and school culture (e.g.: "Extra-curricular voluntary activities such as student prayer groups, bible study groups or interreligious discussion groups enrich school life.", $\omega = .75$). The sense of vocation for the job of a teacher was assessed using single items on the one hand referring to a general sense of calling ("I feel called to be a teacher.", Ortenburger, 2010, the original four-point response format was adapted to a five-point one: *does not apply at all* (1) to *fully applies* (5)) and on the other hand referring to a specifically religious sense of calling ("I feel called by God to work as a teacher.", Pirner & Wamser, 2017, same response format).

Control variables

As single variables we took into account gender (*man* (0), *woman* (1), three people who indicated "diverse" were counted as missing), school sponsorship (*privat*e (0), *public* (1)), years of service (see Appendix Table A1), and denominational affiliation (*no* (0), *yes* (1)). The affinity to the teaching profession ("I like being a teacher."), the self-assessment as well as the perceived external assessment of one's own teaching quality ("I am a good teacher.", and "I am popular with my students.") were modeled as a self-constructed scale (response format: *does not apply* (1) to *fully applies* (4)). Two subscales were used to ask how much perceived student heterogeneity affects the teaching (COACTIV study Baumert et al., 2009, four-level response format (*very much* (1) to *not at all* (4)): perceived achievement heterogeneity (original scale name: "low-achieving students", for example: "Too many low-performing students.") and perceived cultural and social heterogeneity (e.g., "Large percentage of students who do not have a sufficient command of the German language.").

Criteria

For measuring the four Teachers' professional beliefs we used proven scales from various research projects. All four criterion scales were applied in the original German wording, combined with a Likert-type response format with five response options (*does not apply at all* (1), *does rather not apply* (2), *partially applies* (3), *largely applies* (4), *fully applies* (5)). Note

that the English translations of all items and response formats presented in this paper, except for the CRS, did not result from a standardized translation–back translation process and have not been used in the empirical investigation. Using them merely serves communicative purposes in the context of this article (for details of all variables used, see supplementary material 2 available online at https://doi.org/10.17605/osf.io/wa6bn).

Teachers' attitude towards a positive error culture was measured by four items of a scale of Dresel (2008); original response categories were *not true at all* (1) to *completely true* (6); exemplary item: "In my teaching, I emphasize that one can learn from mistakes.". CFA confirmed a one factor solution of this scale by resulting in excellent model fit and good reliability ($\omega = .76$).

Teachers' orientation to the individual student. This four-item scale (Gerecht et al., 2007, original response categories: *does not apply* (1) to *fully applies* (4)) contains items such as "If a student has a personal concern, I also address it in class". CFA results showed a good fit with good reliability ($\omega = .79$).

To assess *teachers' professional idealism*, we used a four-item scale (Ortenburger, 2010, p. 135–136). The original response categories were *right* (1) – *wrong* (4); exemplary item: "Whoever does not become a teacher out of inner conviction should rather leave it all alone.". Due to an insufficient loading on the factor, item "The traditional view that the teaching profession requires the commitment of the whole person is outdated today." ($\lambda = .16$, *se* = .05) was omitted from the model. Model fit for this scale was excellent and reliability was acceptable ($\omega = .63$).

Teachers' professional self-efficacy. This scale (Schwarzer & Schmitz, 1999, p. 60) contains items such as "I know that I manage to convey the exam-relevant material to even the most problematic students." (original response categories: *does not apply* (1) to *fully applies* (4)). While the original scale contains 10 items, we have limited ourselves to the six items which, on the one hand, are meaningful beyond their original project-related purpose and, on the other hand, are not due to external factors beyond the teachers' control. After allowing a residual correlation between two highly similar items (see supplementary material 2 available online at <u>https://doi.org/10.17605/osf.io/wa6bn</u>), CFA results indicate an excellent fit and good reliability ($\omega = .70$).

Model	χ^2	χ^2 df		CFI	TLI	ω	AVE	
	(p)		[90 % C.I.]					
Religious-spiritual belie	fs							
1. Religiosity (CRS)	23.27	4	.057	.993	.983	.88	.63	
	(<.001)		[.038; .084]					
2. Religious tolerance	0.00	1	.000	1.000	1.004	.70	.47	
	(1.00)		[.000; .000]					
3. Spirituality (SAIL)	383.09	80	.051	.928	.906	[.68; .79]	[.32; .43]	
	(<.001)		[.050; .061]					
Contextual/subjective fa	actors							
4. Religion-friendly	0.00	1	.000	1.000	1.004	.73	.52	
school climate	(1.00)		[.000; .000]					
5. RPR beliefs	91.91	18	.053	.973	.958	[.75; .79]	[.43; .53]	
	(<.001)		[.047; .069]					
Control variables								
6. Affinity to the	0.00	1	.000	1.000	1.005	.68	.43	
teaching profession	(1.00)		[.000; .000]					
7. Perception of the	56.28	10	.057	.987	.972	[.67; .94]	[.40; .76]	
heterogeneity of the	(<.001)		[.048; .077]					
pupils								
8. Professional beliefs	119.73	112	.008	.996	.996	[.69; .79]	[.30; .48]	
	(<.001)		[.000; .000]					
Complete Model	1713.20	1,651	.004	.997	.997	[.68; .94]	[.30; .76] ^a	
	(.140)		[.000; .000]					

Table 1. Model-Fit of CFAs of single scales and the complete model and information on construct reliability

Note. N = 1,441. CRS = Centrality of Religiosity Scale. SAIL = Spiritual Attitude and Involvement List. RPR beliefs = teachers' beliefs regarding the Relation between their Profession and Religion.

^aAverage shared variance (ASV) of the items from the constructs in each case smaller than the average extracted variance (AVE) according to Fornell & Larcker (1981; ASV ϵ [02; .08], see supplementary material 1 available online at <u>https://doi.org/10.17605/osf.io/wa6bn</u>).

Results

Effects of religiosity and spirituality dimensions on teachers' professional beliefs

First, we conducted a SEM with the centrality of religiosity scale (CRS) and religious tolerance as predictors of the four measures of teachers' professional beliefs, but without taking into account contextual factors, subjective factors, and control variables. This was done in order to first determine the specific effects of our measurement instruments for religiosity. Contrary to our hypotheses 1 to 4, religiosity – as represented by the CRS – displayed no statistical significant effect (-.08 $\leq \beta \leq$.06) on any of the professional beliefs while religiosity – as defined by religious tolerance – contributed only very marginally to explaining variance in teachers' professional self-efficacy ($R^2 \leq$.05, see Figure 2).



Figure 2. SEM with the centrality of religiosity scale (CRS), and religious tolerance as predictors of teachers' professional beliefs. All regression and covariance path weights are completely standardized (standard errors). The measurement model has been omitted to increase clarity (see Table 1 and supplementary material 3). N = 1,441. Dashed lines indicate statistically non-significant paths (p > .05).

Beyond using the CRS as a predictor, we computed a second SEM which contained the effects of the three spirituality dimensions of the SAIL on the four measures of teachers' professional beliefs while also controlling for religious tolerance. As opposed to the model in Figure 2, the importance of the spirituality scales as a whole was substantial for all criteria this time ($.10 \le R^2 \le .26$). This was mainly due to the non-transcendent spirituality facet "connectedness with others", which had substantial effects for all four criteria ($.23 \le \beta \le .32$, see Figure 3). The other non-transcendent facet "connectedness with oneself" displayed only one substantial path – namely on professional self-efficacy. In contrast, for "connectedness with the transcendent" there was no relevance to the professional beliefs at all.



Figure 3. SEM with spirituality dimensions connectedness with the transcendent, connectedness with others, and connectedness with oneself (SAIL) under control of religious tolerance as predictors of teachers' professional beliefs. All regression and covariance path weights are completely standardized (standard errors). The measurement model has been omitted to increase clarity (see Table 1 and supplementary material 3 available online at https://doi.org/10.17605/osf.io/wa6bn). N = 1,441. Dashed lines indicate statistically non-significant paths (p > .05).

Effects of spirituality dimensions on teacher's professional beliefs under control of religious tolerance taking into account contextual factors, subjective factors, and control variables

As religiosity (measured by the CRS) had been found to have no effect on teachers' professional beliefs (see Figure 2), we skipped it from the final model. This resulted in a model that contained the SAIL dimensions, religious tolerance and all relevant contextual factors, subjective factors, and control variables as predictors of teachers' professional beliefs (see Table 2). This model provided a significantly larger explanatory value than both models presented up to that point $(.14 \le R^2 \le .51)$. Basically, the effect patterns of the spirituality aspects "connectedness with oneself" and "connectedness with others" remain more or less the same but with decreasing effect sizes for both constructs; the effects of religious tolerance remained virtually unchanged. Taken together, even when controlling for subjective factors, contextual factors, as well as control variables, non-transcendent spiritual beliefs are still relevant for the formation of professional beliefs, but only to a comparatively small degree. Consequently, the pre-registered hypotheses 1-4 regarding effects of spiritual beliefs – as core dimensions of spirituality – on teachers' professional beliefs could only be partially confirmed.

Table 2. Path coefficients, standard errors, and significances of the final structural equation model with spiritual beliefs (SAIL) and religious tolerance including contextual factors, subjective factors, and control variables to explain variance in professional beliefs

	Criteria												
	T	eacher	·s'	Т	eachei	rs'	т			г			
	attitude towards positive error culture		orien	orientation to the		1							
			individual			ideoliam			protessional sell-				
				student			iucalisiii			enicacy			
	β	$SE(\beta)$	р	β	$SE(\beta)$	р	β	$SE(\beta)$	р	β	$SE(\beta)$	р	
Spiritual beliefs					_								
Connectedness with													
the transcendent	.01	.06	.85	.04	.06	.50	.00	.06	.98	.08	.06	.20	
(SAIL)													
Connectedness with	02	06	.64	10	.06	.13	0.0	10	00	16	06	< 01	
oneself (SAIL)	.03	.00					.00	.15	.99	.10	.00	< .01	
Connectedness with	10	07	< 01	22	07	< 01	- 11	07	<.01	.11	07	.09	
others (SAIL)	.18	.07	< .01	.23	.07	< .01	.21	.07			.07		
Religious tolerance	.12	.05	<.01	.12	.04	.01	05	.05	.26	.17	.05	<.01	
Contextual/													
subjective factors													
School type	02	04	71	21	04	< 01	05	04	24	01	04	77	
special school ^a	.02	.04	./1	.41	.04	< .01	.05	.04	.24	.01	.04	.//	
School type	06	06	04	16	15	05	< 01	02	05	67	15	05	< 01
primary school ^a	.00	.04	.10	.15	.05	< .01	.02	.05	.07	15	.03	< .01	
Religion-friendly	10	05	04	02	05	.48	06)6 .05	.28	.06	05	.18	
school climate	.10	.03	.04	05	.05		5 .06				.03		
Context-related RPR	14	06	02	10	06	05	00	9.06	.15	15	06	.02	
beliefs	-,14	14 .06	.02	12	.00	.05	09				.00		
Person-related RPR	10	05	00	15	05	< 01	04	06	.54	11	05	< .05	
beliefs	.12	.	.02	.15	.05	< .01	.04	.00			.05		
General sense of	1/	05	< 01	07	05	16	21	06	~ 01	1 2	05	< 01	
calling	.14	.05	< .01	07	.05	.10	.31	.00	< .01	.43	.05	< .01	

Control variables

	R^2	.14			.27			.25			.51	
heterogeneity												
and social	03	.07	.73	10	.07	.16	04	.07	.58	.06	.07	.38
Perceived cultural												
heterogeneity												
achievement	.02	.08	.76	.03	.08	.74	08	.09	.34	.03	.08	.74
Perceived												
teaching profession	02	.00	.00	.29	.07	< .01	.09	.07	.10	.34	.08	< .01
Affinity to the	02	06	80	20	07	< 01	00	07	10	24	00	< 01

Notes. In the final model, only those contextual factors, subjective factors, and control variables that showed statistically significant main effects on at least one of the criteria in the preliminary analyses were included. All regression weights and associated standard errors were fully standardized. Statistically significant path coefficients (p < .05) set in bold; see supplementary material 3 available online at <u>https://doi.org/10.17605/osf.io/wa6bn</u> for measurement model and model fit; N = 1,441. Coding: ^a No = 0, Yes = 1. RPR beliefs = teacher beliefs regarding the Relation between their Profession and Religion.

With regard to the hypotheses 5 to 7, involving contextual factors, subjective factors, and control variables, respectively, the results can be summarized as follows: Teachers at special schools – as well as, to a lesser extent, primary school teachers – and those who show a high affinity for their profession are more likely to focus on the individual needs of students. In addition, individuals who have a high affinity for the teaching profession and those who feel called to be teacher hold a more idealistic view of the teaching profession (teacher's professional idealism); these teachers also show higher levels of professional self-efficacy. Therefore, hypothesis 5a (effects of school types special school and primary school) could be merely confirmed for two out of four criteria: with respect to the criteria teachers' orientation to the individual students and regarding teachers' self-efficacy. In contrast, hypotheses 5b (effects of teaching at a denominational school) and 5c (effects of RE as a subject), as well as hypothesis 7 (effects of a religion-friendly school climate) had to be completely rejected. The feeling of being called as a teacher shows substantial relevance to teachers' orientation to the individual students and to teachers' self-efficacy (thus supporting hypothesis 5d). The effects of teachers' beliefs regarding the relation between their profession and religion are not substantial (rejection of hypothesis 6). As expected, there was no direct effect of our control variables except for the affinity to the teaching profession that shows a substantial effect on

teachers' orientation to the individual student as well as on teacher's professional selfefficacy.

Discussion

The relationships between religious and spiritual beliefs on the one hand and professional beliefs on the other hand were found to be more complex than expected, as our analyses revealed. Contrary to our hypotheses and to the studies presented in the theory section, religiosity was apparently almost irrelevant for teachers' professional thinking and acting; religious tolerance as a form of expressing religiosity also made only a minor contribution. The only spiritual dimension that showed substantial explanatory value for three of the four aspects of professional beliefs was "connectedness with others"; "connectedness with the transcendent" – which is the facet that is most similar to religiosity – did not contribute (this was similar regarding professional ethics beliefs, see Penthin, Christ et al., 2022). These findings can be quite plausibly explained by the characteristics of the four constructs that were used as exemplary professional beliefs. While all four of them imply an intrinsic interest of teachers for their students and thus relate to a "connectedness with the other", it is mainly the construct of professional self-efficacy that relates directly to the teachers' self-reflection as a person and therefore to the spirituality-dimension "connectedness with oneself". Furthermore, the items from this SAIL subscale were partly similar to the construct of self-efficacy in general.

Potential moderating variables, i.e. teaching at a denominational school, having RE as a subject, or feeling a sense of being called by God to the profession are not relevant for teachers' professional thinking as our study showed. Teachers' beliefs that religion should be present in school and that teachers should bring their own religiosity to school had no substantial effects, either. There are only tendencies showing (see Table 2).

The substantial differences of our findings compared to the (mainly US-American) studies and the qualitative research are not easy to interpret. They may be due on the one hand to the fact that in most quantitative studies carried out to date, the correlations between religious and professional beliefs were conceptualized in an under-complex manner and often not evaluated by multivariate analysis. Our results seem to suggest that it is not the intensity of religiosity or spirituality that makes a difference, but their concrete manifestations as prosocial and tolerant attitudes – that may just as well be underpinned by secular arguments or

motivations. To put it bluntly: Christians are not in general morally better people, nor are they in general better teachers.

On the other hand, however, in the German context, religious beliefs seem to play a less significant role in the development of a prosocial, student-oriented teacher attitude or an idealistic self-concept than in the most parts of the U.S.⁴ The reason for this can be assumed to be connected with the lower importance of religion in Germany compared to the U.S., which is also reflected in the school context. Also, it can be pointed out that in Germany, the development of educational science and of the school system has historically been linked to the emancipation from ecclesiastical paternalism and religious influence. Thus, a strong current of decidedly secular to religion-critical pedagogical orientations has established itself among teachers as well as among teacher educators. Apparently, German teacher training is succeeding in establishing a teacher professionalism that is largely independent of religious and ideological orientations – which should certainly be regarded as a major achievement. It would be interesting to conduct similar studies in other European and non-European countries apart from the U.S. At any rate, our research suggests that – in Germany as well as in other countries - integrating reflection on possible relationships between teachers' personal religiosity or spirituality and their professional thinking and acting into teacher education and training can be beneficial.

Limitations and avenues for further research

We focused on the explanatory value of religious and spiritual beliefs for professional beliefs among teachers, mainly detecting a moderate explanatory value of spirituality and a few contextual/subjective factors as well as one control variable. Future research may build on our results by investigating incremental validity of other factors that may influence professional beliefs and how they interact with religiosity and spirituality (see Skott, 2015; Merk, 2020). Teacher identity research shows positive relationships of ethical orientations of teachers with their professional beliefs, too (Granjo et al., 2021). It would also be desirable, if teachers' professional idealism and self-efficacy explained more common variance in their items. These

⁴ It should be noted that there are certainly geographic regions in the United States that

have more in common with the context in Germany than with other regions in the

U.S.; future studies can explore this aspect in more detail.

scales could be revised, supplemented or counter-validated. Future research may also explore other professional beliefs beyond the beliefs on teaching and learning investigated here and the professional-ethical beliefs in Penthin, Christ et al. (2022).

In our study, we aimed at assessing both religiosity and even more spirituality in a way that did not aim at specific religions or certain styles of spirituality. However, there are three avenues for further research: Firstly, one might focus on the predictive value of belonging to specific Christian and non-Christian faith communities and related spiritual styles. While research findings with pre-service teachers at a Catholic university in Glasgow suggest that their Catholic-influenced religious beliefs do not provide a conscious backdrop for their self-reported professional beliefs, this may be different for more religiously-influenced countries (de Ruyter et al., 2003). Secondly, given the increasingly secular society in Germany as well as many other countries, it might be worthwhile to explore the moderating effects of different secular spiritual styles regarding the explanatory value of spirituality for teachers' professional beliefs beyond those we investigated by using the SAIL scales. Thirdly, future studies can, in the spirit of international knowledge transfer in religious worldview and spirituality education, also shift the focus of the research to religions other than Christian; comparisons between religious affiliations would be quite promising (see Schweitzer & Schreiner, 2020).

While it may be assumed that the sample of teachers from the German context with mainly either Christian or secular background used is approximately representative of the population of teachers in terms of gender ratio, it is unclear to what extent the sample is representative of the population of teachers in other characteristics. In comparison with the "Religion Monitor", a representative survey of the German population (in general, not only teachers) from 2013, the respondents of our study are more religious, especially those from the eastern German states (the former German Democratic Republic).⁵ Presumably, teachers with Religious Education as a subject are also overrepresented due to their particular participation motivation. However, taking RE as a teaching subject into account did not

⁵ About 58% of the teachers in Western German states and about 50% in Eastern German states indicated to believe "strongly" or "rather strongly" that God, Deities or something divine exists, compared to 54% West and 23% East in the representative "Religion Monitor" survey (Pollack & Müller, 2013, p. 12).

provide statistically significant effects. Further research should aim at increasing participation motivation of non-religious teachers as well as of teachers without RE as subject.

The study presented here collected subjective beliefs of teachers, but did not research consequences on actions (e.g. via vignettes with decision options, see e.g., Smolarczyk et al., 2021). In this respect, it would be further advisable to look at the effects of religiosity and spirituality not only on quite general professional beliefs in subsequent studies, but also to inquire about intentions to act in professional decision-making situations (see also the importance of ethical decisions for professional beliefs demonstrated by Forster-Heinzer and Oser, 2020). Moreover, longitudinal and intervention designs as well as qualitative approaches may explore effects of religiosity and spirituality on change in professional beliefs.

Conclusion

Based on the findings of this study, it is reasonable to assume that teachers' religious or transcendent spiritual beliefs are not substantially associated with their professional beliefs. Professional beliefs are, however, associated with the spiritual dimensions of a positive relationship to oneself and to others – thus also to students. It also turned out that contextual as well as subjective factors and one of our control variables contributed at least as much to the variance explanation in the professional beliefs. That said, before causal relationships can be assumed, further studies with strong designs are needed.

Irrespective of the question of causality, teachers' professional beliefs are not so much associated with the level of *general* religiosity or spirituality, but rather with *specific* forms: if a teacher believes in God or a transcendent power, but this belief does not strengthen his or her self-confidence and care for others, it will be unrelated to his teaching.

Overall, our study indicates that religious or spiritual beliefs (in addition to other variables of at least equal importance) *can* make a difference regarding teachers' professional beliefs, at least if they take on certain forms that promote caring for others and self-confidence. However, contrary to what has been assumed so far, it is mainly the nontheistic aspects of spirituality that matter. To further evaluate the scope of these results future studies might scrutinize the discriminant validity of the corresponding scales compared to basal personality scales including agreeableness and conscientiousness (see e.g. MacDonald, 2000). With a certain degree of caution, it can nevertheless be concluded that teacher education and

training may benefit from including a reflection on one's own (non-)religiosity and (non-)spirituality as well as their potential connections with one's own profession.

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Disclosure statement

There is no potential competing interest.

Additional information

Supplementary material is available online at <u>https://dx.doi.org/10.17605/osf.io/wa6bn</u>.

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Appendix. Notes on data collection, questionnaire, booklet design, computations and measures of validity

Sampling and data collection

The study was approved by the Bavarian State Ministry of Education and Cultural Affairs and in addition by the school headmasters. The survey complied with GDPR and was approved by the data protection officer of the first author's university. Participation in the study was voluntary, and informed written consent was obtained for all cases.

The questionnaire was only administered to fully trained teachers. With regard to religious affiliation, a region was selected from the outset in which there is a balanced ratio of Protestants, Catholics and non-denominational or otherwise religious persons (North Rhine-Westphalia's Duisburg-Essen spatial planning region) and, in the sense of maximum contrast, a region in which religious members are in a clear minority situation (Saxony's Upper Elbe Valley). As it proved difficult to collect data in the regions mentioned, we also collected data from schools in Bavaria and other federal states.

Feature	Categories	Frequency		Missi	ng
		n	%	n	%
Gender	Female	1,056	74.0	14	1.0
	Male	368	25.8		
	Diverse	3	0.2		
Age-group	Under 30 years	133	9.3	10	0.7
	30 - 39 years	372	25.8		
	40 - 49 years	381	26.4		
	50 - 60 years	430	30.0		
	Over 60 years	115	8.0		
Years of service	Under 5 years	215	15.0	7	0.5
	5 - 10 years	265	18.5		
	11 - 20 years	406	28.3		
	Over 20 years	548	38.2		

Table A1. Sample description

Religious Education as a	Yes	408	29.6	62	4.3
teaching subject	No	971	70.4		
Federal states	Bavaria	,1006	69.8	4	0.3
	North Rhine-Westphalia	271	18.9		
	Saxony	139	9.7		
	Others	21	1.6		
School types	Primary school	532	37.1	6	0.4
	Secondary schools ^a	365	25.4		
	Gymnasium (high school)	323	22.5		
	Special school	136	9.5		
	Vocational school	53	3.7		
	Others	26	1.8		
Denominational school	Yes	194	14.2	77	5.3
	No	1,170	85.8		

Note. Valid frequencies.

^aSchool types other than Gymnasium (high school) that vary in requirement levels, partly integrate high school courses and may have different names in different federal states: Hauptschule, Mittelschule, Realschule, Gesamtschule, Sekundarschule, Oberschule. 22 people with non-Christian religious affiliations were excluded from the sample (n = 11 Buddhist, n = 3 Muslims, n = 2 Jewish, n = 5 other than the aforementioned; with n = 72 missing).

Notes on questionnaire and booklet design

While we applied the German version of the CRS-5, we refer to the English version by Huber and Huber (2012) for all item texts displayed throughout this paper and in the supplementary material available online at https://doi.org/10.17605/osf.io/wa6bn. Item texts from the SAIL were translated from English into German by applying translation-back translation procedure (Brislin, 1980). The differences between the back translation and the original version were marginal. The final version was checked by a German Anglicist and an English Germanist.

The booklet design consisted of four booklets, which were utilized to create six questionnaire versions with two booklets per version. The booklets were rotated so that each of the six questionnaire version contained, among other variables of the project, at least one criterion scale (professional idealism, attitude towards positive error culture, social orientation and professional self-efficacy). This is called a balanced incomplete matrix booklet design (Gonzalez & Rutkowski, 2010). The predictor scales CRS and SAIL were included in all

booklets. The six questionnaire versions were randomly distributed among the participants.

Notes on computations

All analyses are based on imputed data (the number of imputation, m = 50, was based on the highest proportion of missing values, see Graham, 2009, p. 561) by applying Rubin's (1987) rules for pooling point estimates and standard errors. The latent variable metric was determined by setting the factor loading of the first indicator of each scale to 1. As the distribution of a small number of variables deviated from the standard normal distribution (skewness range: -2.60 to 0.27, excessive kurtosis range: -1.51 to 8.10, see supplementary material 2 available online at https://doi.org/10.17605/osf.io/wa6bn), we applied maximum likelihood estimation with robust standard errors (MLR; see Brown, 2015, p. 346). All standard errors for the completely standardized coefficients (*beta*, *r*, λ) have been approximated using the standard formula *se* = coefficient/*t*-value (see Agresti, 2015) since lavaan does not provide those standard errors automatically when using multiple imputations. Multiple imputations are based upon predictive mean modeling (pmm; see Lee & Carlin 2016). Robust corrections to test statistics are made by pooling the robust test across 50 imputations for which the model converged using the D2-method (Enders, 2010, pp. 239– 240).

Fit of all models was evaluated via the parameters χ^2 -test, Comparative Fit Index (CFI), Tucker-Lewis-Index (TLI) and Root Mean Square Error of Approximation (RMSEA). As the χ^2 -test is known to be oversensitive with large samples, even small deviations from the multivariate normal distribution or minor misspecifications in the model (Brown, 2015, p. 69), we mainly utilized CFI/TLI and RMSEA to evaluate the model fit (for details see appendix). See Table 1 for details on model fit and reliability measures. Cut-off values for the evaluation of model fit were determined according to the recommendations of Hu and Bentler (1999) as well as Brown (2015, pp. 74–75): CFI/TLI close to .95 or above and RMSEA close to .06 or below. According to Brown (2015, p. 75), CFI/TLI values between .90 and .95 are acceptable, if all other fit indices indicate good model fit, too. Construct reliability was assessed with McDonald's ω (Revelle & Zirnbarg, 2009). The reported factor loadings and regression coefficients are completely standardized values. See supplemental materialhttps://osf.io/wa6bn for the unstandardized solutions.

Notes on preliminary analyses on the effects of contextual factors, subjective factors, moderation effects and control variables

The relevant contextual as well as subjective factors were identified by inspecting statistically significant latent correlations with the criteria. These variables were: type of school (special school, primary school), religion-friendly school climate, general sense of calling, and the context-related as well as the person-related beliefs regarding the relation between teachers' profession and religion.

To determine the moderation effects, a latent interaction term was formed for each context factor/subjective factor with the centrality of religiosity scale, religious tolerance, and the three facets of spirituality, respectively. The latent interaction indicators were formed as product terms of the (centered) indicators of the respective religiosity or spirituality scales and the (uncentered) dichotomous context/subjective factors (Foldnes & Hagtvet, 2014). There were statistically significant effects on at least one of the four professional beliefs for seven of these latent interaction terms in the preliminary analyses. However, in the final model, neither substantial nor significant path coefficients were found for any of these latent interaction effects. Thus, they were removed from the final model for the sake of clarity. For the control variables, the preliminary analyses only revealed statistically significant main effects for the affinity to the teaching profession, the perceived achievement heterogeneity of the students, and the perceived cultural and social heterogeneity of the students.

Notes on the factorial structure of the SAIL scale

Computing the complete model (see Table 1**Fehler! Verweisquelle konnte nicht gefunden werden.**) with all predictors and criteria revealed a substantial and significant loading of the item "I have had experiences in which I seemed to merge with a power or force greater than myself." of the subscale connectedness with the transcendence ($\lambda = .83$, se = .03) on the CRS factor ($\lambda = .72$, se = .03). Inspection of the item text revealed that it may be considered as in closer proximity to religiosity (CRS) than to the other items of the subscale that it was meant to belong. Therefore, we decided to exclude the aforementioned item from all subsequent analyses, which resulted in an increased separability of CRS and connectedness with the transcendence indicated by a substantial and significant decrease of their latent correlation from r = .70 (se = .03; 95% C.I. [64.; .76]) to r = .55 (se = .04; 95% C.I. [.47; .62]). This still represents a fairly high correlation, but the constructs are discriminable according to the criterion developed by Fornell and Larcker (1981).

Notes on construct validity

As displayed in Table 1, the results provide evidence for the construct validity of our measures: Regarding fit of measurement models, when determined separately for each latent variable, it ranged from acceptable (CFI/TLI \geq 928/.906; RMSEA \leq .057) to very good (CFI/TLI = 1.000/1.005; RMSEA = .000) across all models. Similarly reliability of the constructs as measured by McDonald's Omega ranged from medium (.67 $\geq \omega \geq$.79) to good ($\omega \geq$.80; see Nájera Catalán, 2019). Taken together, all criteria proved to be reliable measures that were substantially correlated, yet empirically separable (see Table 1 and supplementary material 1 available online at https://doi.org/10.17605/osf.io/wa6bn).