



Teachers' educational philosophy orientation profiles: Latent profile analysis and multigroup measurement invariance using the educational philosophy orientations scale

Buket Kayışlı Arkadaş

İnönü University, Malatya, Türkiye (ORCID: 0000-0002-1083-7002)

Corresponding Author: Buket Kayışlı Arkadaş, buket.kayisli@inonu.edu.tr

Submitted: 14 April 2026 Revised: 11 June 2026 Accepted: 15 June 2026

Abstract

The purpose of this study was to examine teachers' educational philosophy orientations through the *educational philosophy orientations scale* (EPOS), confirm the scale's four-dimensional structure, identify teachers' orientation patterns on the basis of latent profiles, and test whether the scale demonstrates measurement invariance across gender groups. The study was conducted within a quantitative research framework with a sample of 350 teachers representing diverse demographic characteristics. Data were collected through the EPOS and a personal information form. The analytical procedure included descriptive statistics, independent-samples *t*-tests, one-way analysis of variance, confirmatory factor analysis, latent profile analysis, and multigroup measurement invariance testing. The findings showed that teachers scored high on progressivism, moderate on reconstructionism and perennialism, and low on essentialism. The four-dimensional structure of the scale was confirmed, teachers' educational philosophy orientations were grouped into four distinct latent profiles, and the scale demonstrated configural, metric, and scalar invariance across gender groups. Overall, the study indicates that teachers' educational philosophy orientations reflect both multidimensional and pattern-based structures, while also highlighting the explanatory value of combining variable-centered and person-centered approaches in educational philosophy research. The findings may help teacher educators and policy makers better understand how teachers' educational philosophy orientations cluster into distinct profiles. They may also guide professional development programs that are sensitive to teachers' philosophical orientations and instructional decision-making patterns.

Keywords: Confirmatory factor analysis; Educational philosophy orientations; Latent profile analysis; Measurement invariance; Teacher beliefs

1. Introduction

1.1. Educational Philosophy Orientations in the Context of Teacher Beliefs

Teacher beliefs constitute one of the deep structures that shape what teachers consider worth teaching, how they position students, and which forms of learning relationships they regard as legitimate in the classroom. For this reason, attempts to explain teacher behavior solely through technical competence, curriculum knowledge, or classroom management skills often remain incomplete. In everyday practice, teachers tend to make decisions not on the basis of explicit theoretical frameworks, but through internally coherent systems of belief. These systems embody particular assumptions about knowledge, authority, learning, the individual, and society. This is precisely why research on teacher beliefs has remained a vibrant and enduring area of inquiry. Both classic and recent studies suggest that the field represents a complex yet indispensable body of scholarship with substantial explanatory power, particularly in relation to pedagogical decision-making and professional practice (Pajares, 1992; Wang et al., 2024). Within this broader framework, educational philosophy orientations should be understood as a more systematic and theoretically analyzable component of teacher beliefs. From this perspective, educational philosophy emerges as a key construct that renders visible not only what teachers think, but also their fundamental orientation toward what education ought to be.

International teacher-belief research also emphasizes that beliefs operate as relatively stable yet context-sensitive cognitive and affective filters through which teachers interpret curricula, students, learning, and professional expectations (Fives & Buehl, 2012; Fives et al., 2014; Kunter et al., 2013). Therefore, educational philosophy orientations can be treated as theoretically grounded belief configurations that mediate the relationship between teachers' professional knowledge and

their instructional decisions.

Recent international evidence also strengthens this interpretation by showing that teacher beliefs are closely related to student learning opportunities, teacher-student interactions, instructional practices, and classroom decision-making. For example, Wolf and Brown (2023) conceptualize teacher beliefs as mechanisms through which broader social and educational expectations influence students' learning experiences, whereas Bleukx et al. (2024) show that teacher beliefs and instructional practices are jointly associated with students' reading achievement. Similarly, Gao et al. (2024) argue that teacher beliefs should be understood together with emotional and professional meaning-making processes. These studies indicate that teacher beliefs are neither merely private opinions nor static attitudes; rather, they function as dynamic professional frameworks that organize teachers' instructional reasoning.

In the Turkish context, the field of teacher beliefs has developed notably, particularly around the concepts of educational beliefs and educational philosophy. Increasing attention has been devoted to the philosophical orientations teachers endorse and to how these orientations relate to classroom practices, conceptions of teaching and learning, and autonomy-supportive behaviors. This body of literature indicates that teachers' philosophical orientations are not abstract or merely theoretical preferences; rather, they generate practical consequences that are reflected in instructional processes. In particular, studies examining the relationships between teachers' educational beliefs, their conceptions of teaching and learning, and their support for learner autonomy demonstrate that teacher philosophy provides a meaningful framework for professional action (Baş, 2015; Oğuz et al., 2014). Educational philosophy orientations should therefore be treated not as peripheral elements of teacher beliefs, but as the intellectual backbone of instructional preferences. Such an approach makes it possible to understand more clearly the normative and epistemological foundations underlying the visible surface of teacher behavior.

1.2. Theoretical Dimensions of Educational Philosophy Orientations: Progressivism, Reconstructionism, Essentialism, and Perennialism

Educational philosophy orientations are theoretical structures that make visible, along four principal lines, how teachers conceptualize students, knowledge, and society. Progressivism grounds learning in students' experiences, interests, and active participation, whereas reconstructionism emphasizes the role of education in social transformation and democratic renewal. In contrast, essentialism places stronger emphasis on knowledge transmission, authority, and discipline, while perennialism centers on enduring truths, reason, and universal knowledge. These four orientations allow teacher preferences to be interpreted not as isolated categories, but as more integrated assumptions about the aims and nature of education. It is therefore no coincidence that the Educational Philosophy Orientations Scale developed in Türkiye is likewise based on this four-dimensional structure, since this framework offers a functional model for rendering the theoretical distinctions found in the literature empirically measurable among teachers and preservice teachers (Aytaç & Uyangör, 2020; İşeri & Gök, 2025). Accordingly, in the context of the present study, educational philosophy orientations should be regarded not merely as theoretical categories, but as empirically tractable constructs through which teachers' pedagogical worlds can be examined.

The significance of these dimensions is further heightened by the fact that teachers rarely embody a single philosophical orientation in pure form. In practice, teachers may display student-centered and democratic tendencies in some areas while adopting more knowledge-centered or authority-based positions in others. This suggests that educational philosophy should be approached not as a labeling device, but as a multidimensional configuration of beliefs. Studies conducted in Türkiye with teachers and preservice teachers have shown that educational philosophy orientations are associated with variables such as lifelong learning, competencies related to the teaching-learning process, and higher-order thinking skills. Recent studies in Türkiye have also contributed to the measurement and interpretation of educational philosophy orientations by developing alternative scale-based approaches and examining the relationship

between teachers' educational philosophy beliefs and teaching-learning approaches (Demir & Çeliköz, 2023; Hamurcu & Altuncu, 2023). These findings indicate that philosophical orientations have consequences not only at the level of thought, but also in relation to pedagogical performance and learning culture (Kurt, 2022; Şahan, 2021).

1.3. Limitations of Variable-Centered Approaches in Educational Philosophy Research

For a considerable period, educational philosophy research has been dominated by variable-centered approaches. Within this framework, researchers examine each subdimension separately, analyze mean scores, correlations, or differences across demographic groups, and ultimately interpret which orientation appears higher or lower. Although this approach has undoubtedly played an important role in the development of the field, it captures only imperfectly the complex structure through which teachers may simultaneously hold multiple philosophical orientations at varying intensities. For instance, a teacher who scores high in progressivism, moderate in reconstructionism, selective in perennialism, and low in essentialism represents more than a set of four separate numbers; rather, this pattern points to a distinctive pedagogical identity. Variable-centered approaches, however, tend to interpret such configurations in a fragmented way, thereby obscuring the holistic profiles that individuals carry (Hickendorff et al., 2018; Spurk et al., 2020). In multidimensional belief domains such as educational philosophy, there is therefore a clear need for analytical frameworks that move beyond mean-level differences.

Although the literature on educational philosophy and educational beliefs in Türkiye has expanded substantially, much of it remains organized around subdimension scores and group differences. Bibliographic studies examining the overall profile of the field also suggest that educational philosophy research has clustered around certain topical areas, while person-centered methodological designs have not yet become prominent. Yet approaching teachers' intellectual orientations not only through the question of which dimension is higher, but also through the question of how dimensions combine, may yield more refined and theoretically meaningful results. When the general profile of the educational philosophy literature in Türkiye is considered together with field studies on teachers' educational beliefs, it becomes evident that typological and pattern-based analyses could fill an important gap in the field (Altinkurt et al., 2012; Fakioglu-Bağcı, 2023). This gap constitutes one of the principal justifications for the person-centered design adopted in the present study.

1.4. Latent Profile Analysis as a Person-Centered Approach

A person-centered approach focuses not on separating individuals according to isolated variable scores, but on how variables come together within the individual. In this respect, it provides a more realistic analytical basis for investigating multilayered constructs such as teacher beliefs. Latent profile analysis, in particular, is a person-centered method that seeks to identify latent subgroups within a sample on the basis of continuous variables. Its central premise is that the heterogeneity observed in a population may conceal distinct profiles composed of individuals who resemble one another more closely. Applied to educational philosophy orientations, this method makes it possible to examine not merely the level of teachers' progressivist or essentialist tendencies, but also how all four dimensions are jointly configured. In doing so, the researcher may demonstrate that two groups of teachers who appear similar in terms of mean scores may, in fact, hold markedly different philosophical combinations (Hickendorff et al., 2018; Spurk et al., 2020). Latent profile analysis therefore represents a methodologically powerful option for uncovering the internal patterning of educational philosophy orientations.

International profile studies in the field of teacher beliefs further show that this approach is not simply a methodological trend, but one with substantial explanatory value. Research examining teacher beliefs and practices in the context of technology integration has revealed that teachers who appear to hold similar beliefs may nevertheless form distinct profiles in terms of their patterns of use. Likewise, a recent study on teacher beliefs regarding students' self-assessment reported that teachers could be grouped into five distinct profiles, each carrying meaningful

implications for practice. Such findings suggest that examining teacher beliefs in profile form may yield results that are both more explanatory and more useful from the perspective of educational policy (Baidoo-Anu et al., 2023; Thurm, 2018). Addressing educational philosophy orientations in a person-centered manner therefore makes it possible to move beyond average scores and to understand teachers within more authentic and more interpretable clusters.

Recent studies further confirm that person-centered approaches are increasingly used to identify meaningful heterogeneity in educational populations. Schel et al. (2025), for instance, used latent profile analysis to distinguish teacher education students according to their self-regulated learning competencies, while Meij et al. (2025) demonstrated that teachers' beliefs about learning principles may vary in ways that are not fully captured by explicit self-reports alone. These findings support the methodological logic of the present study: when educational constructs are multidimensional, profile-based analyses can reveal theoretically meaningful patterns that remain hidden in variable-centered designs.

From a learning perspective, such profiles are valuable because they show how teachers may combine student-centered, knowledge-centered, and socially oriented assumptions when interpreting learning environments and instructional responsibilities (Muthén & Muthén, 2000; Spurk et al., 2020).

1.5. Theoretical and Methodological Importance of Multigroup Measurement Invariance

Examining teachers' educational philosophy orientations on a profile basis is an important step; however, this step can only be considered valid if the measurement instrument is shown to represent the same construct across different groups. Comparisons across groups such as gender, school level, school type, or professional seniority are interpretable only when the scale produces comparable meanings in those groups. This is precisely where measurement invariance becomes essential, as it raises the following question: does the same scale score correspond to the same conceptual meaning across different groups? Comparisons made without addressing this question may produce findings that appear statistically meaningful while remaining conceptually problematic. The stages commonly discussed in the literature as configural, metric, and scalar invariance are used to test whether groups conceptualize the scale with the same factor structure, whether item loadings are comparable, and whether item intercepts are equivalent across groups (Chen, 2007; Putnick & Bornstein, 2016). Measurement invariance should therefore be regarded not as a technical supplement to multigroup research, but as a fundamental requirement that determines the legitimacy of interpretation.

This requirement is particularly important in educational research, since teacher samples often differ in contextual and professional characteristics. Studies in Türkiye that draw attention to measurement invariance in intergroup comparisons have emphasized that identical scores across different subgroups may not always reflect the same psychological content. At the international level, recent work on teacher-related scales indicates that measurement invariance has increasingly become a standard expectation in empirical reporting. In a recent study measuring teacher awareness and beliefs, for example, testing measurement structure across groups was treated as one of the principal stages for establishing the validity of the findings. This tendency suggests that constructs such as educational philosophy orientations, which are inherently open to comparative interpretation, must be approached with the same degree of methodological rigor (Başusta & Gelbal, 2015; Park et al., 2024). In this sense, measurement invariance is no longer a technical concern relevant only to specialists in quantitative methodology, but a central phase that safeguards the theoretical claims of the study.

1.6. Purpose of the Study and Research Questions

The primary aim of this study is to examine teachers' educational philosophy orientations through the Educational Philosophy Orientations Scale, to confirm the scale's four-dimensional structure, and to identify the latent profile patterns underlying teachers' orientations across the dimensions of progressivism, reconstructionism, essentialism, and perennialism. The study does not confine

itself to evaluating educational philosophy orientations solely on the basis of subdimension means and demographic group differences; it also seeks to reveal the patterns through which these orientations cluster among teachers. In this respect, the study offers a more comprehensive explanatory framework by approaching educational philosophy orientations through both variable-centered and person-centered perspectives. Teachers' educational understandings are therefore examined not only through the question of which dimension is higher, but also through the question of how these dimensions come together to form coherent configurations. This approach makes it possible to interpret teachers' philosophical orientations in a more nuanced and multilayered manner.

A second aim of the study is to test whether the four-dimensional measurement structure of the EPOS functions equivalently across gender groups. To this end, a multigroup measurement invariance analysis is conducted to determine whether the scale retains the same structural meaning for female and male teachers. The study thus seeks not only to identify the levels and profile patterns of teachers' educational philosophy orientations, but also to assess the cross-group comparability of this structure. Testing whether the measurement instrument functions similarly across different groups is essential for ensuring the interpretive validity of the findings. For this reason, the study adopts an integrated analytical design that moves beyond descriptive and comparative analysis to include structural validity and group equivalence within the measurement model.

In line with these general aims, the study addresses the following research questions:

RQ 1) What are the levels of teachers' EPOS subdimension scores?

RQ 2) Which subdimensions are more dominant, and which are more limited, within teachers' educational philosophy orientations?

RQ 3) Is the four-dimensional structure of the EPOS supported by confirmatory factor analysis?

RQ 4) How many latent profiles underlie teachers' educational philosophy orientations?

RQ 5) How can the identified latent profiles be characterized in terms of progressivism, reconstructionism, essentialism, and perennialism?

RQ 6) Do teachers' EPOS subdimension scores differ significantly according to gender, age, educational attainment, subject area, school level, school type, and professional seniority?

RQ 7) Does the EPOS demonstrate configural, metric, and scalar measurement invariance across gender groups?

Within this framework, the study seeks to make both theoretical and methodological contributions by examining teachers' educational philosophy orientations in terms of four subdimensions, latent profile patterns, and measurement equivalence. On the one hand, it identifies the educational philosophy orientations in which teachers tend to concentrate; on the other hand, it evaluates how these orientations cluster among teachers and the extent to which they are comparable across groups. In doing so, the study proposes a more holistic approach that addresses educational philosophy orientations not merely at the level of average scores, but within a structural, pattern-based, and comparative framework. In this respect, the study contributes to the explanation of teachers' educational understandings through an integrated variable-centered, person-centered, and measurement-based perspective.

2. Method

2.1. Research Design

This study was conducted within a quantitative research framework as a survey study incorporating descriptive, comparative, and structural analyses. The study aimed to examine the overall level of teachers' educational philosophy orientations, determine whether these orientations differed according to demographic variables, confirm the four-dimensional structure of the Educational Philosophy Orientations Scale, identify teachers' educational philosophy patterns through latent profile analysis, and investigate whether the measurement structure operated equivalently across gender groups. In this respect, the study addressed educational philosophy orientations not only from a variable-centered perspective, but also within a person-

centered and measurement-based analytical framework.

The quantitative structure of the study was based on the evaluation of teachers' EPOS scores through multidimensional statistical analyses. First, descriptive statistics were calculated for the four subdimension scores. Then, group comparisons were conducted according to demographic and professional variables. In the subsequent stages, confirmatory factor analysis was performed to test the construct validity of the scale, latent profile analysis was conducted to identify the patterning of teachers' educational philosophy orientations, and multigroup measurement invariance analysis was used to examine whether the scale functioned equivalently across gender groups. Accordingly, the study employed an integrated methodological design that examined teachers' educational philosophy orientations at descriptive, comparative, structural, and profile-based levels.

2.2. Study Group

The study group consisted of 350 teachers working at different school levels (see Table 1). Participants were selected through convenience sampling, which made it possible to reach teachers with diverse demographic and professional characteristics. The inclusion criterion for participation was being an actively employed teacher during the data collection period. Participation in the study was voluntary, and no identifying personal information was collected from the participants.

Table 1
Demographic Characteristics of the Participants

<i>Variable and category</i>	<i>n</i>	<i>%</i>
Gender		
Female	208	59.4
Male	135	38.6
Prefer not to say	7	2.0
Age		
20–29 years	62	17.7
30–39 years	151	43.1
40–49 years	108	30.9
50 years and older	29	8.3
Educational Attainment		
Bachelor's degree	231	66.0
Master's degree	87	24.9
Doctoral degree	32	9.1
Subject Area Group		
Primary/Classroom	39	11.1
Language	68	19.4
STEM	77	22.0
Social/Religious	60	17.1
Arts/Physical Education	53	15.1
Guidance/Other	53	15.1
School Level		
Primary school	82	23.4
Middle school	157	44.9
High school	111	31.7
School Type		
Public	294	84.0
Private	56	16.0
Professional Seniority		
0–5 years	73	20.9
6–10 years	81	23.1
11–15 years	82	23.4
16 years and above	114	32.6

As summarized in Table 1, most participants were female, aged 30–49, held a bachelor’s degree, and worked in public schools. Participants represented various subject areas, with STEM and language fields forming the largest groups. The sample also included teachers from primary, middle, and high school levels, with professional seniority ranging from 0–5 years to 16 years or more. Overall, the participant group was heterogeneous in terms of gender, age, education level, subject area, school level, school type, and teaching experience.

Data were collected online through Google Forms using a structured questionnaire form. The questionnaire link was distributed to teachers through professional communication networks and digital channels accessible to teachers. Before responding to the form, participants were informed about the purpose of the study, the voluntary nature of participation, and the confidentiality of the data. No identifying personal information was requested. This online data collection procedure enabled the researchers to reach teachers from school levels, subject areas, and professional seniority groups. Although the sampling strategy did not aim to produce a statistically representative national sample, the diversity of the study group provided a suitable empirical basis for examining educational philosophy orientations across different demographic and professional characteristics.

The participants varied in terms of age group, educational attainment, subject area, school level, school type, and level of professional seniority. This diversity indicates that the study was based on a heterogeneous sample structure including different teacher profiles. Such diversity within the study group made it possible to examine teachers’ educational philosophy orientations both at the subdimension level and in terms of latent profile patterns across different variables.

The demographic characteristics of the participants are presented in detail in the findings section. As reported there, the sample included female and male teachers, as well as a small number of participants who preferred not to disclose their gender. Different subgroups were also represented with respect to age, educational attainment, subject area, school level, school type, and professional seniority. This structure provided an appropriate empirical basis for variable-centered comparisons, latent profile analysis, and multigroup measurement invariance analysis.

2.3. Instruments

A two-part form was used as the data collection instrument in this study. The first part consisted of a personal information form designed to identify participants’ demographic and professional characteristics. This section included seven variables: gender, age, educational attainment, subject area, school level, school type, and professional seniority. These variables made it possible to examine teachers’ educational philosophy orientations in relation to different demographic and professional characteristics.

The second part included the Educational Philosophy Orientations Scale, developed by Aytaç and Uyangör (2020), to assess teachers’ educational philosophy orientations. The EPOS consists of 36 items and four dimensions: progressivism (13 items), reconstructionism (9 items), essentialism (7 items), and perennialism (7 items). In the original validation study, Aytaç and Uyangör (2020) reported Cronbach’s alpha coefficients of .89 for progressivism, .84 for reconstructionism, .82 for essentialism, .66 for perennialism, and .83 for the overall scale. In the present study, Cronbach’s alpha coefficients were .921 for progressivism, .854 for reconstructionism, .927 for essentialism, and .778 for perennialism, indicating acceptable to high reliability across the dimensions. The scale evaluates teachers’ orientations toward educational philosophy under four subdimensions: progressivism, reconstructionism, essentialism, and perennialism. Each item is rated on a 5-point Likert scale. Response options are coded as 1 = Strongly Disagree, 2 = Disagree, 3 = Partially Agree, 4 = Agree, and 5 = Strongly Agree.

Progressivism reflects student-centered, experiential, democratic, and active learning-oriented views; reconstructionism reflects the view that education should contribute to social transformation and democratic renewal; essentialism reflects knowledge transmission, discipline, teacher authority, and basic academic content; and perennialism reflects reason, universal values, enduring knowledge, and intellectual discipline. Thus, the items measure the extent to which

teachers endorse contemporary, socially transformative, traditional, and permanence-oriented educational assumptions. Both the distributions of the subdimensions and the patterns formed by these dimensions across teachers constituted the main axis of analysis in the present study.

2.4. Data Analysis

Before the main analyses were conducted, the dataset was examined in terms of missing values, coding accuracy, and the suitability of the scale scores for statistical analysis. Descriptive statistics were calculated for the EPOS subdimension scores. The distributions of the subdimension scores were evaluated through skewness and kurtosis values. Following commonly used guidelines in applied psychometrics, skewness and kurtosis values within the -2 to +2 range were interpreted as indicating no severe deviation from approximate normality (George & Mallery, 2020; Kline, 2016). The skewness and kurtosis coefficients obtained for the four EPOS dimensions were within this accepted range; therefore, the distributions were considered acceptable for parametric analyses. Accordingly, independent-samples *t*-tests were used for two-group comparisons, and one-way analysis of variance [ANOVA] was used for comparisons involving three or more groups. Significant ANOVA results were followed by Tukey HSD post hoc comparisons, and the findings were reported in accordance with APA 7 style by including test statistics, degrees of freedom, *p* values, and effect size indicators where applicable. Tukey HSD was preferred for post hoc comparisons because it is a widely used procedure for identifying pairwise group differences following statistically significant ANOVA results while controlling the familywise error rate. The level of statistical significance was set at .05.

To examine the construct validity of the scale, confirmatory factor analysis [CFA] was conducted. In the CFA, four latent factors were specified in line with the theoretical structure of the EPOS: progressivism, reconstructionism, essentialism, and perennialism. Maximum likelihood estimation was used in the CFA. Prior to the CFA, the distributional characteristics of the observed variables were examined through skewness and kurtosis values. The results indicated that there was no severe deviation from normality, and the data were considered suitable for maximum likelihood estimation. Model fit was evaluated using the χ^2/df ratio, the Comparative Fit Index [CFI], the Tucker-Lewis Index [TLI], and the Root Mean Square Error of Approximation [RMSEA]. In addition, standardized factor loadings at the item level were examined to assess the extent to which the items represented their corresponding latent constructs. No correlated error terms were added to the model, and no post hoc model modification was applied. Thus, the tested model was evaluated in accordance with the original four-dimensional theoretical structure of the scale.

Latent profile analysis [LPA] was conducted to determine the patterns under which teachers' educational philosophy orientations were clustered. In the LPA, the four EPOS subdimension scores were used as continuous indicators, and alternative profile solutions ranging from one to five profiles were compared. Model selection was based on the Akaike Information Criterion [AIC], the Bayesian Information Criterion [BIC], the sample-size adjusted Bayesian Information Criterion [SABIC], entropy, and the size of the smallest profile. Lower AIC, BIC, and SABIC values were interpreted as indicating better model fit, whereas higher entropy values were considered to reflect stronger classification accuracy. In identifying the most appropriate profile solution, not only statistical fit but also theoretical meaningfulness, profile size, and interpretability were taken into consideration.

To examine whether the scale was comparable across gender groups, multigroup measurement invariance analysis was performed. Within this scope, configural, metric, and scalar invariance models were tested sequentially. In comparing these models, particular emphasis was placed on the criteria of $\Delta CFI \leq .010$ and $\Delta RMSEA \leq .015$. These analyses were conducted to evaluate whether the EPOS retained the same structural meaning across female and male teacher groups and whether group comparisons could be interpreted in terms of measurement equivalence.

In the gender variable, seven participants selected the "prefer not to say" option. These participants were retained in the descriptive statistics, CFA, reliability analyses, and latent profile analysis because these analyses did not require gender-based group comparison. However, they

were not included in the independent-samples *t*-test by gender or in the multigroup measurement invariance analysis. This decision was made because the “prefer not to say” category included a very small number of participants and did not provide a sufficient group size for stable parameter estimation in multigroup structural modeling. Therefore, gender-based comparisons and measurement invariance analyses were conducted only between female and male teacher groups.

Descriptive statistics, *t*-test analyses, ANOVA, and reliability analyses were conducted using IBM SPSS. Confirmatory factor analysis, latent profile analysis, and multigroup measurement invariance analyses were performed through structural modeling-based analytical procedures. Thus, the study combined classical statistical comparisons with advanced structural and person-centered analyses.

2.5. Ethical Principles and Permissions

This study was reviewed and approved by the Scientific Research and Publication Ethics Committee for Social and Human Sciences of İnönü University. Ethical approval was granted at the session dated March 5, 2026, and was recorded as Session No. 4 and Decision No. 30. Throughout the research process, the principle of voluntary participation was observed. Before completing the online questionnaire, participants were informed about the purpose of the study, the voluntary nature of participation, and the confidentiality of the data. The data obtained from participants were used solely for scientific purposes, and all procedures were carried out in accordance with ethical principles and confidentiality requirements.

3. Findings

3.1. Scores on the Educational Philosophy Orientations Scale

Table 2 presents descriptive statistics for the participants' scores on the Educational Philosophy Orientations Scale.

Table 2

Descriptive Statistics for Participants' Educational Philosophy Orientations Scale Scores

	<i>N</i>	<i>M</i>	<i>SD</i>
Progressivism	350	3.98	0.60
Reconstructionism	350	3.55	0.57
Essentialism	350	2.19	0.85

As shown in Table 2, the mean score for the progressivism subdimension was 3.98 ± 0.60 , the mean score for the reconstructionism subdimension was 3.55 ± 0.57 , the mean score for the essentialism subdimension was 2.19 ± 0.85 , and the mean score for the perennialism subdimension was 3.36 ± 0.50 . Based on these mean values, participants' essentialist orientation may be considered low, their reconstructionist and perennialist orientations may be considered moderate, and their progressivist orientation may be considered high. This finding suggests that student-centered and change-oriented educational views were more dominant in the study group, whereas the more traditional and authority-based orientation remained relatively limited.

3.2. Examination of Educational Philosophy Orientation Scores by Demographic Variables

3.2.1. Analysis by gender

Table 3 presents the independent-samples *t*-test results comparing participants' educational philosophy orientation scores by gender.

As shown in Table 3, participants' scores did not differ significantly by gender for progressivism, $t(341) = -0.546$, $p = .585$, $d = -0.06$; reconstructionism, $t(341) = -0.460$, $p = .646$, $d = -0.05$; essentialism, $t(341) = 0.727$, $p = .468$, $d = 0.08$; or perennialism, $t(341) = -0.078$, $p = .938$, $d = -0.01$. The mean scores of female and male participants were highly similar across all subdimensions. This finding indicates that gender did not constitute a distinguishing factor in teachers' educational philosophy orientations.

Table 3
Examination of Participants' Educational Philosophy Orientation Scores by Gender

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Progressivism					
Female	208	3.97	0.60	-0.546	.585
Male	135	4.00	0.61		
Reconstructionism					
Female	208	3.55	0.57	-0.460	.646
Male	135	3.57	0.57		
Essentialism					
Female	208	2.21	0.87	0.727	.468
Male	135	2.14	0.83		
Perennialism					
Female	208	3.35	0.52	-0.078	.938
Male	135	3.36	0.48		

Note. $p < .05$, independent-samples *t*-test. For gender, $df = 341$; effect size is reported as Cohen's *d* in the text.

3.2.2. Analysis by age

Table 4 presents the one-way ANOVA results comparing participants' educational philosophy orientation scores by reorganized age groups.

Table 4
Examination of Participants' Educational Philosophy Orientation Scores by Reorganized Age Groups

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	Difference
Progressivism						
1. 20-29 years	62	4.20	0.51	5.192	.002	1 > 4
2. 30-39 years	151	3.99	0.61			
3. 40-49 years	108	3.91	0.61			
4. 50 years and older	29	3.73	0.59			
Reconstructionism						
1. 20-29 years	62	3.77	0.54	4.865	.003	1 > 3
2. 30-39 years	151	3.57	0.56			
3. 40-49 years	108	3.47	0.58			
4. 50 years and older	29	3.37	0.56			
Essentialism						
1. 20-29 years	62	1.96	0.77	2.856	.037	4 > 1
2. 30-39 years	151	2.17	0.86			
3. 40-49 years	108	2.30	0.87			
4. 50 years and older	29	2.43	0.90			
Perennialism						
1. 20-29 years	62	3.26	0.47	1.842	.139	
2. 30-39 years	151	3.34	0.52			
3. 40-49 years	108	3.41	0.48			
4. 50 years and older	29	3.49	0.51			

Note. $p < .05$, one-way ANOVA. For age groups, 1 = 20-29 years, 2 = 30-39 years, 3 = 40-49 years, and 4 = 50 years and older. Difference values are based on Tukey HSD post hoc comparisons.

As shown in Table 4, participants' scores differed significantly by age group for progressivism, $F(3, 346) = 5.192$, $p = .002$, $\eta^2 = .043$; reconstructionism, $F(3, 346) = 4.865$, $p = .003$, $\eta^2 = .040$; and essentialism, $F(3, 346) = 2.856$, $p = .037$, $\eta^2 = .024$. Perennialism scores did not differ significantly by age group, $F(3, 346) = 1.842$, $p = .139$, $\eta^2 = .016$. Tukey HSD post hoc comparisons indicated that teachers in the 20-29 age group had higher progressivism scores than those aged 50 years and older, higher reconstructionism scores than those aged 40-49 and 50 years and older, whereas teachers aged 50 years and older had higher essentialism scores than those aged 20-29 years.

3.2.3. Analysis by educational attainment

Table 5 presents the one-way ANOVA results comparing participants' educational philosophy orientation scores by educational attainment.

Table 5

Examination of Participants' Educational Philosophy Orientation Scores by Educational Attainment

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Progressivism					
Bachelor's degree	231	3.96	0.61	2.130	.120
Master's degree	87	4.08	0.60		
Doctoral degree	32	3.85	0.58		
Reconstructionism					
Bachelor's degree	231	3.52	0.56	2.898	.056
Master's degree	87	3.68	0.59		
Doctoral degree	32	3.47	0.59		
Essentialism					
Bachelor's degree	231	2.22	0.85	1.722	.180
Master's degree	87	2.05	0.86		
Doctoral degree	32	2.33	0.84		
Perennialism					
Bachelor's degree	231	3.38	0.51	1.424	.242
Master's degree	87	3.28	0.49		
Doctoral degree	32	3.41	0.43		

Note. $p < .05$, one-way ANOVA. Effect size is reported as eta squared (η^2) in the text.

As shown in Table 5, participants' scores did not differ significantly by educational attainment for progressivism, $F(2, 347) = 2.130$, $p = .120$, $\eta^2 = .012$; reconstructionism, $F(2, 347) = 2.898$, $p = .056$, $\eta^2 = .016$; essentialism, $F(2, 347) = 1.722$, $p = .180$, $\eta^2 = .010$; or perennialism, $F(2, 347) = 1.424$, $p = .242$, $\eta^2 = .008$. Although minor mean-level differences were observed, these differences did not reach statistical significance. This finding indicates that teachers' educational philosophy orientations displayed a similar pattern regardless of educational attainment.

3.2.4. Analysis by subject area

Table 6 presents the one-way ANOVA results comparing participants' educational philosophy orientation scores by grouped subject area.

Table 6

Examination of Participants' Educational Philosophy Orientation Scores by Grouped Subject Area

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Progressivism					
Primary/Classroom	39	3.86	0.61	0.637	.672
Language	68	3.98	0.64		
STEM	77	3.95	0.60		
Social/Religious	60	4.04	0.54		
Arts/Physical Education	53	4.05	0.60		
Guidance/Other	53	3.97	0.63		
Reconstructionism					
Primary/Classroom	39	3.41	0.57	1.194	.311
Language	68	3.62	0.53		
STEM	77	3.50	0.58		
Social/Religious	60	3.62	0.55		
Arts/Physical Education	53	3.63	0.57		
Guidance/Other	53	3.51	0.62		

Table 6 continued

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Essentialism					
Primary/Classroom	39	2.44	0.92	1.319	.255
Language	68	2.13	0.82		
STEM	77	2.29	0.91		
Social/Religious	60	2.06	0.84		
Arts/Physical Education	53	2.13	0.78		
Guidance/Other	53	2.15	0.85		
Perennialism					
Primary/Classroom	39	3.45	0.55	1.485	.194
Language	68	3.39	0.47		
STEM	77	3.44	0.52		
Social/Religious	60	3.27	0.51		
Arts/Physical Education	53	3.27	0.44		
Guidance/Other	53	3.32	0.51		

Note. $p < .05$, one-way ANOVA. Effect size is reported as eta squared (η^2) in the text.

As shown in Table 6, participants' scores did not differ significantly by grouped subject area for progressivism, $F(5, 344) = 0.637$, $p = .672$, $\eta^2 = .009$; reconstructionism, $F(5, 344) = 1.194$, $p = .311$, $\eta^2 = .017$; essentialism, $F(5, 344) = 1.319$, $p = .255$, $\eta^2 = .019$; or perennialism, $F(5, 344) = 1.485$, $p = .194$, $\eta^2 = .021$. Related disciplines were combined into broader groups to improve interpretability and reduce the risk of low statistical power caused by very small subgroup sizes. Overall, educational philosophy orientations were broadly similar across the reorganized subject-area groups.

3.2.5. Analysis by school level

Table 7 presents the one-way ANOVA results comparing participants' educational philosophy orientation scores by school level.

Table 7

Examination of Participants' Educational Philosophy Orientation Scores by School Level

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Progressivism					
Primary school	82	3.96	0.58	1.803	.166
Middle school	157	3.93	0.60		
High school	111	4.07	0.62		
Reconstructionism					
Primary school	82	3.57	0.57	1.408	.246
Middle school	157	3.50	0.56		
High school	111	3.62	0.59		
Essentialism					
Primary school	82	2.21	0.79	0.818	.442
Middle school	157	2.24	0.88		
High school	111	2.11	0.87		
Perennialism					
Primary school	82	3.37	0.48	0.054	.948
Middle school	157	3.36	0.51		
High school	111	3.35	0.51		

Note. $p < .05$, one-way ANOVA. Effect size is reported as eta squared (η^2) in the text.

As shown in Table 7, participants' scores did not differ significantly by school level for progressivism, $F(2, 347) = 1.803$, $p = .166$, $\eta^2 = .010$; reconstructionism, $F(2, 347) = 1.408$, $p = .246$, $\eta^2 = .008$; essentialism, $F(2, 347) = 0.818$, $p = .442$, $\eta^2 = .005$; or perennialism, $F(2, 347) = 0.054$, $p = .948$, $\eta^2 < .001$. The mean scores of teachers working at the primary, middle, and high school levels were highly similar across all subdimensions. Thus, no meaningful differentiation was found in educational philosophy orientations by school level.

3.2.6. Analysis by school type

Table 8 presents the independent-samples *t*-test results comparing participants' educational philosophy orientation scores by school type.

Table 8

Examination of Participants' Educational Philosophy Orientation Scores by School Type

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Progressivism					
Public	294	3.99	0.60	0.435	.664
Private	56	3.95	0.62		
Reconstructionism					
Public	294	3.55	0.57	-0.009	.993
Private	56	3.56	0.57		
Essentialism					
Public	294	2.19	0.86	-0.250	.802
Private	56	2.22	0.85		
Perennialism					
Public	294	3.35	0.50	-0.452	.651
Private	56	3.39	0.52		

Note. $p < .05$, independent-samples *t*-test. For school type, $df = 348$; effect size is reported as Cohen's *d* in the text.

As shown in Table 8, participants' scores did not differ significantly by school type for progressivism, $t(348) = 0.435$, $p = .664$, $d = 0.06$; reconstructionism, $t(348) = -0.009$, $p = .993$, $d = -0.00$; essentialism, $t(348) = -0.250$, $p = .802$, $d = -0.04$; or perennialism, $t(348) = -0.452$, $p = .651$, $d = -0.07$. The mean scores of teachers working in public and private schools were highly similar across all subdimensions. This finding indicates that teachers' educational philosophy orientations displayed a similar pattern regardless of school type.

3.2.7. Analysis by professional seniority

Table 9 presents the one-way ANOVA results comparing participants' educational philosophy orientation scores by professional seniority.

Table 9

Examination of Participants' Educational Philosophy Orientation Scores by Professional Seniority

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	Difference
Progressivism						
1. 0-5 years	73	4.19	0.52	5.041	.002	1 > 4
2. 6-10 years	81	4.01	0.56			
3. 11-15 years	82	3.94	0.66			
4. 16 years and above	114	3.85	0.61			
Reconstructionism						
1. 0-5 years	73	3.75	0.52	4.419	.005	1 > 3
2. 6-10 years	81	3.57	0.54			
3. 11-15 years	82	3.50	0.63			
4. 16 years and above	114	3.46	0.56			
Essentialism						
1. 0-5 years	73	1.94	0.76	3.271	.021	4 > 1
2. 6-10 years	81	2.17	0.81			
3. 11-15 years	82	2.24	0.93			
4. 16 years and above	114	2.33	0.86			
Perennialism						
1. 0-5 years	73	3.24	0.47	2.328	.074	
2. 6-10 years	81	3.34	0.44			
3. 11-15 years	82	3.39	0.55			
4. 16 years and above	114	3.43	0.51			

Note. $p < .05$, one-way ANOVA. For professional seniority, 1 = 0-5 years, 2 = 6-10 years, 3 = 11-15 years, and 4 = 16 years and above. Difference values are based on Tukey HSD post hoc comparisons.

As shown in Table 9, participants' scores differed significantly by professional seniority for progressivism, $F(3, 346) = 5.041, p = .002, \eta^2 = .042$; reconstructionism, $F(3, 346) = 4.419, p = .005, \eta^2 = .037$; and essentialism, $F(3, 346) = 3.271, p = .021, \eta^2 = .028$. Perennialism scores did not differ significantly by professional seniority, $F(3, 346) = 2.328, p = .074, \eta^2 = .020$. Tukey HSD post hoc comparisons indicated that teachers with 0-5 years of professional experience scored higher on progressivism than those with 16 years or more of experience, higher on reconstructionism than those with 11-15 years and 16 years or more of experience, whereas teachers with 16 years or more of experience scored higher on essentialism than those with 0-5 years of experience. These findings suggest that certain educational philosophy orientations may vary with professional seniority.

3.3. Findings Related to the Measurement Model

3.3.1. CFA results

A confirmatory factor analysis was conducted to test the four-dimensional structure of the Educational Philosophy Orientations Scale. In the analysis, four latent factors were specified in accordance with the theoretical structure of the scale: progressivism, reconstructionism, essentialism, and perennialism. Table 10 presents the confirmatory factor analysis fit indices for the Educational Philosophy Orientations Scale.

Table 10

Confirmatory Factor Analysis Fit Indices for the Educational Philosophy Orientations Scale

Model	χ^2	df	χ^2/df	CFI	TLI	RMSEA
Four-factor model	746.62	588	1.27	0.976	0.974	0.028

As shown in Table 10, the fit indices of the four-factor model indicate a good level of fit. In particular, the values of $\chi^2/df = 1.27$, CFI = 0.976, TLI = 0.974, and RMSEA = 0.028 demonstrate that the four-dimensional structure of the EPOS was confirmed in the present sample. This finding indicates that the scale structure composed of the dimensions of progressivism, reconstructionism, essentialism, and perennialism is theoretically supported and that the model-data fit is high.

An examination of the standardized factor loadings showed that the items in the progressivism dimension ranged from .649 to .722, those in the reconstructionism dimension ranged from .604 to .671, those in the essentialism dimension ranged from .773 to .854, and those in the perennialism dimension ranged from .526 to .615. All factor loadings were acceptable and statistically significant; therefore, the separate item-loading table was removed to reduce redundancy and to keep the focus on the main LPA findings.

3.4. Latent Profile Analysis Findings

3.4.1. Comparison of alternative models

To determine the latent patterns underlying teachers' educational philosophy orientations, alternative profile solutions ranging from one to five profiles were compared on the basis of the four EPOS subdimension scores. In this process, progressivism, reconstructionism, essentialism, and perennialism scores were used as continuous indicators. Model selection was based on a joint consideration of information criteria, classification quality, profile size, and theoretical interpretability. Specifically, the Akaike Information Criterion, the Bayesian Information Criterion, the sample-size adjusted Bayesian Information Criterion, entropy, and the size of the smallest profile were examined. Lower AIC, BIC, and SABIC values were interpreted as indicating better model fit, whereas higher entropy values were considered to reflect stronger classification accuracy. Table 11 presents the comparison of alternative latent profile models.

As shown in Table 11, the information criteria improved substantially from the one-profile solution to the four-profile solution. The four-profile model yielded the lowest AIC, BIC, and SABIC values among the tested models and also produced the highest entropy value. This indicates that the four-profile model provided both strong model fit and high classification

Table 11
Comparison of Alternative Models for the Latent Profile Analysis

<i>Model</i>	<i>AIC</i>	<i>BIC</i>	<i>SABIC</i>	<i>Entropy</i>	<i>Smallest Profile (%)</i>
1-profile model	2646.629	2677.492	2652.113	-	100.0
2-profile model	1600.480	1666.065	1612.135	0.958	44.6
3-profile model	1050.142	1150.448	1067.967	0.965	17.1
4-profile model	776.406	911.433	800.401	0.968	17.1
5-profile model	777.418	947.168	807.584	0.891	14.6

accuracy. In addition, the smallest profile size in the four-profile solution was 17.1%, suggesting that the solution did not produce an excessively small or unstable profile.

The five-profile solution did not improve the model fit relative to the four-profile solution. On the contrary, the AIC, BIC, and SABIC values increased slightly in the five-profile model, and entropy decreased from 0.968 to 0.891. This decrease suggests weaker classification quality despite the greater complexity of the five-profile solution. Moreover, the additional profile did not provide a clearer or theoretically more meaningful interpretation of teachers' educational philosophy orientations. Therefore, the four-profile model was selected as the most appropriate solution because it offered the best balance between statistical adequacy, classification quality, profile size, parsimony, and theoretical interpretability.

3.4.2. *The optimal profile solution*

When the alternative profile solutions were evaluated together, the findings indicated that teachers' educational philosophy orientations were best represented by a four-profile structure. This solution was preferred because it had the most favorable information criteria, the highest entropy value, and interpretable profile sizes. The entropy value of the four-profile solution indicated strong classification accuracy, and the smallest profile size showed that the model did not generate an unstable or substantively weak profile.

The selection of the four-profile solution shows that teachers' educational philosophy orientations do not constitute a uniform structure. Rather, teachers differ in terms of the ways in which progressivism, reconstructionism, essentialism, and perennialism combine within their belief systems. In this respect, the latent profile analysis provided a more holistic understanding of teachers' educational philosophy orientations than would be possible through subdimension mean scores alone. Teachers can therefore be understood not only as individuals with relatively high or low scores on separate dimensions, but also as members of qualitatively distinct subgroups characterized by different combinations of educational philosophy orientations.

3.4.3. *Description of the profiles*

Table 12 presents the subdimension means and sample distributions of the identified latent profiles.

Table 12
Subdimension Means and Sample Distributions of the Identified Latent Profiles

<i>Profile</i>	<i>n</i>	<i>%</i>	<i>Progressivism</i>	<i>Reconstructionism</i>	<i>Essentialism</i>	<i>Perennialism</i>
			<i>Mean</i>	<i>Mean</i>	<i>Mean</i>	<i>Mean</i>
Profile 1	121	34.6	4.54	4.15	1.37	2.95
Profile 2	79	22.6	4.29	3.68	1.93	3.50
Profile 3	90	25.7	3.60	3.20	2.51	3.23
Profile 4	60	17.1	3.00	2.71	3.69	4.19

According to Table 12, Profile 1 was the largest group, comprising 34.6% of the sample. This profile was characterized by very high progressivism and reconstructionism scores, a distinctly low essentialism score, and a relatively lower perennialism score. This pattern supports labeling Profile 1 as the strong progressivist-reconstructionist profile. Teachers in this profile appear to be closer to student-centered, democratic, experience-based, and change-oriented conceptions of

education.

Profile 2 accounted for 22.6% of the sample. This profile was characterized by high progressivism, moderately high reconstructionism, low essentialism, and moderately high perennialism. This configuration indicates a mixed pattern in which contemporary pedagogical orientations coexist with a certain emphasis on enduring knowledge, permanence, and universal values. Accordingly, Profile 2 may be labeled the balancing mixed profile. Teachers in this group appear to combine student-centered and change-oriented views with selected perennialist elements.

Profile 3 represented 25.7% of the sample. In this profile, progressivism and reconstructionism were at moderate levels, essentialism was moderately high, and perennialism was moderate. This pattern reflects a transitional configuration in which contemporary and traditional orientations coexist without a sharp dominance of either side. For this reason, Profile 3 may be described as the moderate mixed profile. Teachers in this group appear to hold more gradual and less sharply differentiated educational philosophy orientations.

Profile 4 comprised 17.1% of the sample and represented the most clearly traditional profile. In this profile, progressivism and reconstructionism were relatively low, whereas essentialism and perennialism were high. Accordingly, Profile 4 may be labeled the traditional perennialist-essentialist profile. Teachers in this group appear to be closer to an educational perspective emphasizing discipline, knowledge-centered instruction, authority, cultural continuity, and enduring truths.

Taken together, these four profiles indicate that teachers' educational philosophy orientations are not homogeneous but instead display a multi-patterned structure. The fact that the two largest profiles were characterized by relatively strong progressivist and reconstructionist tendencies suggests that contemporary educational orientations were prominent in the sample. At the same time, the existence of a smaller but distinct profile concentrated in essentialism and perennialism shows that traditional orientations continue to exist among teachers. The two mixed profiles further demonstrate that many teachers do not fit neatly into purely contemporary or purely traditional categories; instead, their educational philosophy orientations are organized through hybrid combinations.

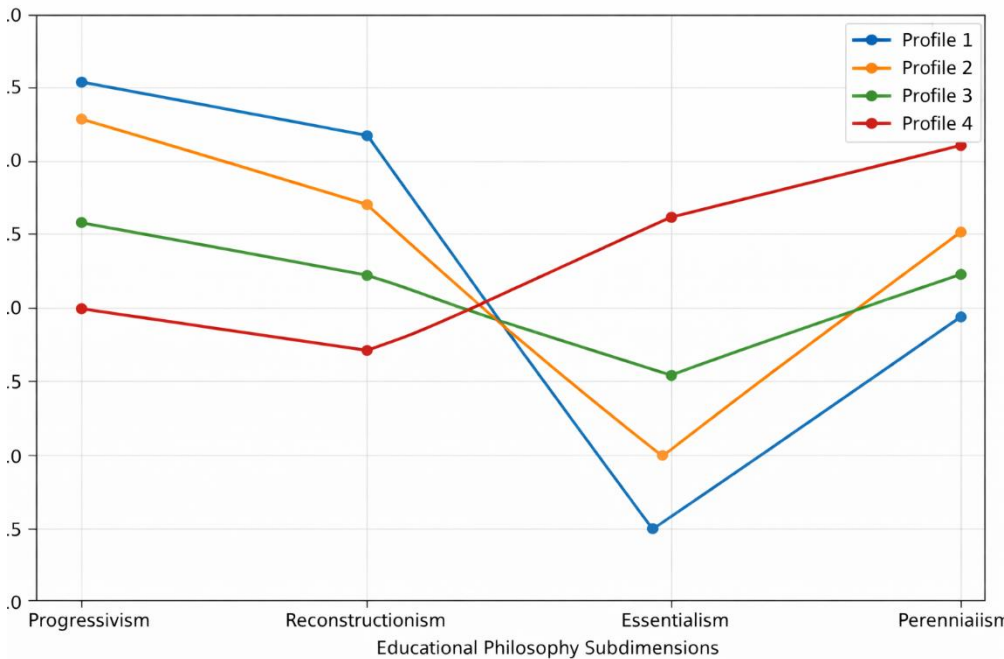
3.4.4. Visual representation of the profile patterns

An examination of the mean score patterns of the identified profiles across the four subdimensions shows clear distinctions among the profiles. In the strong progressivist-reconstructionist profile, progressivism and reconstructionism reached the highest levels, whereas essentialism remained at the lowest level. In the traditional perennialist-essentialist profile, the reverse pattern was observed: essentialism and perennialism were high, while progressivism and reconstructionism were relatively lower. The balancing mixed profile and the moderate mixed profile appeared as transitional configurations between these two more clearly differentiated profiles.

As shown in Figure 1, the visual representation of the profile patterns makes the differences among the four profiles more interpretable. The figure demonstrates that teachers' educational philosophy orientations are not organized along a simple single continuum. Instead, the dimensions combine in different ways across profiles. In particular, the contrast between the profile in which progressivism and reconstructionism rise together and the profile in which essentialism and perennialism are jointly concentrated supports the view that teachers' pedagogical orientations are multidimensional and pattern-based. For this reason, the figure strengthens both the readability of the results and the theoretical explanatory value of the latent profile solution.

Figure 1

Mean score patterns of the latent profiles across the subdimensions of teachers' educational philosophy orientations



Note. The lines in the figure represent the mean scores of the four identified profiles on the progressivism, reconstructionism, essentialism, and perennialism subdimensions. The profile patterns indicate that teachers' educational philosophy orientations are not homogeneous; rather, some profiles are concentrated more strongly in progressivist and reconstructionist orientations, whereas others are concentrated more strongly in essentialist and perennialist orientations.

3.5. Multigroup Measurement Invariance Findings

A multigroup measurement invariance analysis was conducted to test whether the four-dimensional structure of the Educational Philosophy Orientations Scale operated equivalently across gender groups. As explained in the data analysis section, the seven participants who selected the "prefer not to say" option for gender were not included in this analysis because this category did not provide a sufficient group size for stable parameter estimation in multigroup structural modeling. Therefore, the measurement invariance analysis was conducted only between female and male teacher groups.

In the analysis, configural, metric, and scalar invariance models were tested sequentially. In evaluating measurement invariance, both model fit indices and changes in model fit across successive models were taken into consideration. In the decision-making process, the criteria of $\Delta CFI \leq .010$ and $\Delta RMSEA \leq .015$ were used as the primary benchmarks. Table 13 presents the results of the multigroup measurement invariance analysis of the EPOS by gender.

Table 13

Results of the Multigroup Measurement Invariance Analysis of the EPOS by Gender

Model	χ^2	df	χ^2/df	CFI	TLI	RMSEA	ΔCFI	$\Delta RMSEA$	Decision
Configural	1512.703	1176	1.286	0.949	0.945	0.029	-	-	Supported
Metric	1551.511	1208	1.284	0.948	0.946	0.029	0.001	0.000	Supported
Scalar	1591.862	1240	1.284	0.947	0.946	0.029	0.001	0.000	Supported

As shown in Table 13, the configural model demonstrated acceptable fit, indicating that the four-dimensional structure of the scale retained the same factor pattern across female and male teacher groups. In the metric model, the absence of any substantial deterioration in CFI and RMSEA relative to the configural model ($\Delta CFI = 0.001$; $\Delta RMSEA = 0.000$) suggests that the relationships between the items and their corresponding latent dimensions were comparable

across groups. Likewise, in the scalar model, the absence of any deterioration beyond acceptable thresholds relative to the metric model ($\Delta\text{CFI} = 0.001$; $\Delta\text{RMSEA} = 0.000$) indicates that the item intercepts also functioned equivalently across groups.

Taken together, these findings show that the scale was supported at the configural, metric, and scalar levels of invariance across female and male teacher groups. Accordingly, the methodological usability of the scale for gender-based comparative analyses is supported. These results also indicate that the nonsignificant gender differences reported in the group comparisons can be interpreted with greater confidence, because the measurement structure was shown to operate equivalently across female and male participants.

4. Discussion

This study examined teachers' educational philosophy orientations through an integrated analytical framework combining variable-centered, person-centered, and measurement-based approaches. More specifically, the study investigated teachers' levels of progressivism, reconstructionism, essentialism, and perennialism; tested the four-dimensional structure of the Educational Philosophy Orientations Scale; identified latent profiles of teachers' educational philosophy orientations; examined differences across demographic and professional variables; and tested measurement invariance across gender groups. The findings indicate that teachers' educational philosophy orientations do not represent a uniform or one-dimensional structure. Rather, they are organized through multidimensional tendencies, distinct latent profiles, and selective demographic variations.

The first major finding was that teachers scored high on progressivism, moderate on reconstructionism and perennialism, and low on essentialism. This result addresses the first two research questions and suggests that student-centered, experience-based, participatory, and change-oriented educational views were more dominant in the sample. By contrast, the lower mean score for essentialism indicates that orientations centered mainly on knowledge transmission, discipline, and authority were less dominant. This finding is consistent with the broader teacher beliefs literature, which argues that teachers' pedagogical decisions are shaped not only by technical knowledge but also by deeper belief systems concerning knowledge, learning, students, and the purposes of education (Aguilar-Valdés & Montenegro, 2025; Pajares, 1992; Wang et al., 2024). In this respect, the relatively strong progressivist tendency observed in this study may be interpreted as an indication that many teachers conceptually endorse learner-centered and active approaches to teaching.

This pattern is also compatible with international evidence showing the continuing prominence of constructivist and learner-centered beliefs among teachers. The OECD (2015) reported that a large majority of teachers in TALIS endorsed constructivist views of learning, including the idea that students should actively construct solutions and that teachers should facilitate inquiry. More recent studies similarly indicate that teachers' belief systems are connected with instructional quality, classroom practices, and students' learning opportunities (Biçer & Yıldırım, 2023; Bleukx et al., 2024; Wolf & Brown, 2023). Therefore, the dominance of progressivism in the present sample should not be interpreted as a purely local tendency; rather, it corresponds to a broader international movement in which teacher professionalism is increasingly associated with student-centered, reflective, and inquiry-oriented pedagogical assumptions.

The moderate levels of reconstructionism and perennialism also deserve attention. These findings suggest that teachers do not organize their educational views around a single philosophical orientation. Rather, they appear to combine change-oriented and student-centered assumptions with a certain degree of emphasis on permanence, universal knowledge, and cultural continuity. This result supports the idea that educational philosophy orientations should not be treated as isolated or mutually exclusive categories. Instead, they should be understood as intersecting belief structures that may coexist within the same teacher. Previous studies in Türkiye have similarly shown that teachers' educational beliefs are associated with their conceptions of teaching and learning, learner autonomy, lifelong learning tendencies, instructional competencies,

and higher-order thinking skills (Alkış Küçükaydın et al., 2023; Baş, 2015; Kurt, 2022; Oğuz et al., 2014; Şahan, 2021). The present findings extend this literature by showing that such philosophical orientations are not only visible at the level of mean scores but also combine in patterned ways across teachers.

Another important result of the study was that the four-dimensional structure of the EPOS was supported through confirmatory factor analysis. The fit indices and standardized factor loadings indicated that the scale retained its theoretical structure in the present sample. The stronger and more homogeneous factor loadings observed in the essentialism dimension suggest that this construct was measured relatively consistently in the sample. By contrast, the lower but still acceptable loadings in the perennialism dimension may indicate that perennialist orientations represent a more heterogeneous domain of meaning among teachers. This is theoretically reasonable because perennialism may include different emphases such as universal knowledge, intellectual discipline, cultural continuity, and enduring values. Therefore, the CFA findings not only support the structural validity of the scale but also provide a foundation for interpreting the subsequent latent profile and measurement invariance findings.

The most original contribution of the study lies in the identification of four distinct latent profiles. This result addresses the fourth and fifth research questions and demonstrates that teachers' educational philosophy orientations are better understood through configurations rather than isolated subdimension scores. The largest profile was characterized by very high progressivism and reconstructionism together with low essentialism. This profile shows that a considerable group of teachers strongly endorsed student-centered, democratic, experiential, and change-oriented conceptions of education. Such a pattern is consistent with person-centered approaches, which emphasize that individuals should be examined in terms of how multiple variables combine within them rather than how each variable functions separately (Hickendorff et al., 2018; Spurk et al., 2020). From this perspective, the profile-based result provides a more holistic picture of teachers' pedagogical belief systems than mean-level comparisons alone.

The second profile, labeled as the balancing mixed profile, is particularly important from a theoretical perspective. Teachers in this group displayed high progressivism, moderately high reconstructionism, low essentialism, and moderately high perennialism. This means that they did not reject contemporary pedagogical orientations; rather, they combined them with selected perennialist elements such as enduring knowledge, intellectual continuity, and universal values. This finding challenges overly simple distinctions between "traditional" and "contemporary" educational orientations. In actual teaching practice, teachers may support active learning, student participation, and social change while also valuing academic standards, cultural continuity, and stable bodies of knowledge. Therefore, Profile 2 shows that teachers' philosophical orientations may be hybrid rather than purely progressive or purely traditional. Similar person-centered studies in educational contexts have shown that teacher beliefs may cluster in complex patterns that cannot be adequately captured through single-variable analysis (Baidoo-Anu et al., 2023; Thurm, 2018). In this sense, the balancing mixed profile strengthens the theoretical argument that educational philosophy orientations should be examined as multidimensional configurations.

The hybrid structure of this profile is also meaningful in light of recent international studies showing that teachers' beliefs are often complex, layered, and shaped by both cognitive and affective dimensions. Gao et al. (2024) emphasize that teacher beliefs are increasingly examined together with emotions and professional meaning-making, while Sharma et al. (2024) show that beliefs about classroom social and emotional learning include multiple dimensions related to classroom management, inclusion, and support. These findings help explain why teachers may simultaneously endorse student-centered orientations and maintain selected elements of permanence, continuity, and academic structure.

The fourth profile, labeled as the traditional perennialist-essentialist profile, also requires careful interpretation. This group represented a smaller but distinct segment of the sample and was characterized by relatively lower progressivism and reconstructionism together with high essentialism and perennialism. This result indicates that traditional educational orientations

continue to exist among teachers, even in a sample where contemporary orientations were generally more dominant. However, this profile should not be interpreted simplistically as a deficit or as resistance to change. Rather, it points to a belief configuration that prioritizes knowledge-centered instruction, discipline, authority, cultural continuity, and enduring truths. Such orientations may be shaped by institutional routines, examination pressures, classroom management concerns, professional experience, and broader socio-cultural expectations regarding schooling. The presence of this profile therefore provides an important empirical reminder: educational reform efforts cannot assume that all teachers operate from the same pedagogical worldview. Instead, reform initiatives need to consider the diversity of teachers' philosophical assumptions.

The existence of the two mixed profiles further supports the need for a person-centered approach. Profile 3 represented a more moderate configuration in which contemporary and traditional orientations coexisted without a sharp dominance of either side. Together with Profile 2, this result suggests that many teachers are not located at the extremes of a philosophical continuum. Rather, they occupy intermediate positions where different educational assumptions are combined in varying degrees. This finding is important because variable-centered approaches may show which subdimension is higher or lower, but they cannot adequately show how these orientations are organized within teachers. Latent profile analysis is useful in this respect because it allows researchers to identify subgroups formed by different combinations of multiple dimensions (Öpengin & Bal Sezerel, 2023). Therefore, the latent profile findings make visible the limitations of relying only on mean scores and group comparisons in educational philosophy research (Hickendorff et al., 2018; Spurk et al., 2020).

The findings related to demographic variables revealed a selective pattern of differentiation. No significant differences were found according to gender, educational attainment, subject area, school level, or school type. These results suggest that teachers' educational philosophy orientations may share a relatively common professional core across several demographic and institutional variables. The lack of gender differences is particularly meaningful when considered together with the measurement invariance findings. Because the scale demonstrated configural, metric, and scalar invariance across female and male teachers, the nonsignificant gender differences can be interpreted with greater confidence. In other words, the absence of gender-based differences does not appear to be an artifact of measurement bias.

The absence of significant differences according to educational attainment, subject area, school level, and school type also deserves interpretation. These findings suggest that formal degree level, disciplinary field, and institutional type may not be sufficient by themselves to explain teachers' educational philosophy orientations. This may indicate that educational philosophy orientations are shaped by broader professional socialization processes, teacher education experiences, school cultures, and accumulated classroom practices rather than by a single demographic characteristic. In this regard, the findings are compatible with the view that teacher beliefs are complex, layered, and embedded in professional experience (Pajares, 1992; Wang et al., 2024).

In contrast, significant differences were found according to age and professional seniority. The mean scores indicated that progressivism and reconstructionism were relatively stronger among younger and less experienced teachers, whereas essentialism tended to be relatively stronger among older and more experienced teachers. However, because age and professional seniority may be closely related, these findings should be interpreted cautiously. This pattern may suggest that teachers' educational philosophy orientations are not fixed structures but may be reshaped over time through professional experience, institutional constraints, classroom realities, and changing expectations of the teaching profession. Younger teachers may have been more recently exposed to learner-centered, constructivist, and reform-oriented approaches in teacher education programs. More experienced teachers, on the other hand, may place greater emphasis on discipline, structure, knowledge transmission, and classroom order as a result of long-term professional practice. This interpretation should be made cautiously, since the study is cross-sectional; nevertheless, the age and seniority findings point to the importance of examining how

teachers' beliefs evolve throughout the professional life course.

Another strong result of the study was that the EPOS demonstrated configural, metric, and scalar invariance across gender groups. This finding addresses the final research question. Configural invariance indicates that the four-factor structure of the scale was similar across female and male teachers. Metric invariance shows that the relationships between items and latent constructs were comparable across groups. Scalar invariance indicates that item intercepts functioned equivalently across groups. These results are important because they show that the EPOS can be used for meaningful gender-based comparisons. Measurement invariance is not merely a technical supplement; it is a methodological condition for valid group comparisons (Chen, 2007; Putnick & Bornstein, 2016). The present findings therefore strengthen the methodological reliability of the study and align with recent expectations in educational measurement research that comparative claims should be supported through invariance testing (Başusta & Gelbal, 2015; Park et al., 2024).

Taken together, the findings show that teachers' educational philosophy orientations are generally weighted toward contemporary pedagogical views, but this structure does not operate identically across all teachers. The study demonstrates that teachers differ not only in the level of their philosophical orientations but also in the ways these orientations combine. This is the central contribution of the study. By integrating CFA, latent profile analysis, demographic comparisons, and measurement invariance testing, the study offers a more comprehensive framework for understanding educational philosophy orientations. It contributes to the literature by showing that educational philosophy should be examined not only as a set of separate subdimensions but also as a patterned belief system embedded in teachers' professional identities.

These findings are consistent with international research suggesting that teacher beliefs should be interpreted as organized systems rather than isolated opinions. Studies on teacher beliefs and professional competence indicate that beliefs influence how teachers interpret instructional quality, student learning, and reform expectations (Fives & Buehl, 2012; Kunter et al., 2013; Wolf & Brown, 2023). Similarly, recent person-centered studies show that latent profiles can reveal meaningful subgroups that remain hidden in variable-centered analyses (Muthén & Muthén, 2000; Schel et al., 2025; Spurk et al., 2020). Recent evidence also suggests that teachers' explicit and implicit beliefs about learning principles may not always align fully with research-based principles, which further supports the need for nuanced and profile-sensitive analyses (Meij et al., 2025). Therefore, the present study strengthens the international relevance of educational philosophy research by showing that teachers' philosophical orientations can be interpreted as profile-based belief configurations.

5. Practical Implications

The findings of this study have several practical implications for teacher education, professional development, curriculum reform, and educational policy. First, the profile-based findings suggest that teacher education programs should include opportunities for preservice teachers to reflect systematically on their own educational philosophy orientations. Rather than presenting educational philosophies only as theoretical categories, teacher education courses may encourage preservice teachers to examine how their beliefs about knowledge, learning, authority, student participation, and social change shape their instructional decisions.

Second, professional development programs may benefit from a profile-sensitive design. The findings show that teachers do not form a homogeneous group in terms of educational philosophy orientations. Some teachers display strongly progressivist and reconstructionist tendencies, some combine contemporary and perennialist assumptions, and others hold more traditional perennialist-essentialist orientations. Therefore, professional development activities should not rely on a one-size-fits-all model. Instead, they may be designed to address different belief profiles and to support teachers in critically reflecting on the relationship between their philosophical assumptions and classroom practices.

Third, the findings have implications for curriculum reform. Reform initiatives often assume

that teachers will interpret and implement curricular changes in similar ways. However, the profile results suggest that teachers may respond differently to reform expectations depending on their underlying educational philosophy orientations. For example, teachers with strong progressivist-reconstructionist orientations may be more receptive to student-centered and socially responsive curricula, whereas teachers with stronger essentialist-perennialist orientations may emphasize structure, content mastery, and continuity. Curriculum reforms should therefore consider teachers' belief profiles as an important factor influencing implementation.

Finally, the findings are relevant for educational policy. Policies aimed at improving instructional quality should take into account that teacher beliefs function as an important mediating mechanism between policy design and classroom practice. The results of this study show that teachers' educational philosophy orientations are multidimensional and profile-based. Therefore, policies that seek to promote pedagogical change should not focus only on external regulations, curriculum documents, or institutional standards. They should also include mechanisms that support teachers' reflective engagement with their own educational assumptions.

6. Conclusion

This study examined teachers' educational philosophy orientations in terms of subdimension levels, demographic differentiation, latent profile patterns, and measurement invariance across gender. The findings showed that teachers displayed high levels of progressivism, moderate levels of reconstructionism and perennialism, and low levels of essentialism. The results also demonstrated that these orientations did not form a homogeneous structure. Instead, teachers' educational philosophy orientations clustered into four distinct profiles: a strong progressivist-reconstructionist profile, a balancing mixed profile, a moderate mixed profile, and a traditional perennialist-essentialist profile.

The study makes three main contributions to the literature. First, it shows that educational philosophy orientations can be examined more comprehensively through a person-centered approach. Second, it supports the four-dimensional structure of the EPOS through confirmatory factor analysis. Third, it strengthens the methodological basis for comparative interpretations by demonstrating configural, metric, and scalar measurement invariance across gender groups. In this respect, the study offers a holistic framework that brings together variable-centered, person-centered, and measurement-based approaches within a single research design.

The findings also have practical significance. Teacher education and professional development programs may benefit from helping teachers recognize and critically reflect on their educational philosophy orientations. Curriculum reform initiatives should also consider that teachers may interpret reform expectations differently depending on their belief profiles. In this sense, the study suggests that educational philosophy orientations are not merely abstract theoretical preferences; they are meaningful belief structures that may influence how teachers understand teaching, learning, curriculum, and professional practice.

The study has several limitations. It was conducted with a specific sample of teachers, and the findings should therefore be generalized with caution. The data were collected through a self-report instrument, which may involve limitations related to social desirability or participants' self-presentation. In addition, the cross-sectional design does not allow causal interpretations regarding age or professional seniority differences. Future research may replicate the study with larger and more representative samples, examine how educational philosophy profiles relate to classroom practices and instructional behaviors, and investigate the development of teachers' philosophical orientations through longitudinal, qualitative, or mixed-method designs. Such studies may further clarify not only which educational philosophy orientations are dominant among teachers, but also how these orientations are enacted in teaching practice.

Data availability: The data supporting the findings of this study were collected from teachers through the Educational Philosophy Orientations Scale (EPOS) and a personal information form. The dataset is not publicly available due to ethical and confidentiality considerations but may be

made available by the author upon reasonable request and subject to ethical approval requirements.

Declaration of interest: The author declares no conflict of interest.

Ethics statement: This study was reviewed and approved by the Scientific Research and Publication Ethics Committee for Social and Human Sciences of İnönü University on March 5, 2026 (Session No. 4, Decision No. 30).

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

References

- Aguilar-Valdés, M., & Montenegro, H. (2025). Epistemological beliefs in mathematics teacher educators: An exploratory study in Chile. *Journal of Pedagogical Research*, 9(1), 363–376. <https://doi.org/10.33902/JPR.202528021>
- Alkış Küçükaydın, M., Esen, S., Çite, H., & Geçer, S. (2023). Critical thinking, epistemological beliefs, and the science-pseudoscience distinction among teachers. *Journal of Pedagogical Research*, 7(3), 1–18. <https://doi.org/10.33902/JPR.202319566>
- Altınkurt, Y., Yılmaz, K., & Oğuz, A. (2012). Educational beliefs of primary and secondary school teachers. *Ondokuz Mayıs University Journal of Faculty of Education*, 31(2), 1–19. <https://doi.org/10.7822/egt174>
- Aytaç, A., & Uyangör, N. (2020). Development of the Educational Philosophy Orientations Scale: A validity and reliability study. In A. Doğanay & O. Kutlu (Eds.), *Current educational sciences research II* (pp. 147–162). Akademisyen Publishing.
- Baidoo-Anu, D., Asamoah, D., & Adusei, A. (2023). Teachers' beliefs and attitudes towards students' self-assessment: A latent profile analysis. *International Journal of Educational Research Open*, 5, 100275. <https://doi.org/10.1016/j.ijedro.2023.100275>
- Baş, G. (2015). Correlation between teachers' philosophy of education beliefs and their teaching-learning conceptions. *Education and Science*, 40(182), 111–126. <https://doi.org/10.15390/EB.2015.4811>
- Başusta, N. B., & Gelbal, S. (2015). Testing measurement invariance in group comparisons: The case of the PISA student questionnaire. *Hacettepe University Journal of Education*, 30(4), 80–90.
- Biçer, A., & Yıldırım, Ş. (2023). Comparison of epistemological beliefs, teaching-learning conceptions, and self-efficacy of pre-service and in-service EFL teachers. *Journal of Pedagogical Research*, 7(4), 414–438. <https://doi.org/10.33902/JPR.202322958>
- Bleukx, N., Denies, K., Van Keer, H., & Aesaert, K. (2024). The interplay between teacher beliefs, instructional practices, and students' reading achievement: National evidence from PIRLS 2021 using path analysis. *Large-scale Assessments in Education*, 12, Article 30. <https://doi.org/10.1186/s40536-024-00212-z>
- Chen, F. F. (2007). Sensitivity of goodness-of-fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, 14(3), 464–504. <https://doi.org/10.1080/10705510701301834>
- Demir, D., & Çeliköz, N. (2023). A scale for determining educational philosophy based on adjective pairs for educators and teachers: A scale development study. *Gazi University Journal of Gazi Educational Faculty*, 43(1), 425–474. <https://doi.org/10.17152/gefad.1209360>
- Fakioğlu-Bağcı, H. (2023). A bibliographic review of the literature on the Turkish philosophy of education. *Journal of Literature*, 4(2), 105–158. <https://doi.org/10.59320/alanyazin.1345069>
- Fives, H., & Buehl, M. M. (2012). Spring cleaning for the “messy” construct of teachers' beliefs: What are they? Which have been examined? What can they tell us? In K. R. Harris, S. Graham, & T. Urdan (Eds.), *APA educational psychology handbook: Vol. 2. Individual differences and cultural and contextual factors* (pp. 471–499). American Psychological Association. <https://doi.org/10.1037/13274-019>
- Fives, H., Lacatena, N., & Gerard, L. (2014). Teachers' beliefs about teaching and learning. In H. Fives & M. G. Gill (Eds.), *International handbook of research on teachers' beliefs* (pp. 249–265). Routledge. <https://doi.org/10.4324/9780203108437-23>
- Gao, Y., Liu, Y., Zeng, Y., & Wang, X. (2024). Studies on language teachers' beliefs and emotions: Current status and future directions. *Heliyon*, 10(19), e38695. <https://doi.org/10.1016/j.heliyon.2024.e38695>
- George, D., & Mallery, P. (2020). *IBM SPSS Statistics 26 step by step: A simple guide and reference* (16th ed.). Routledge.

- Hamurcu, G. C., & Altuncu, N. (2023). Investigating the relationship between teachers' educational philosophy beliefs and teaching-learning approaches. *Ahi Evran University Journal of Kirsehir Education Faculty*, 24(3), 1681–1716. <https://doi.org/10.29299/kefad.1275803>
- Hickendorff, M., Edelsbrunner, P. A., McMullen, J., Schneider, M., & Trezise, K. (2018). Informative tools for characterizing individual differences in learning: Latent class, latent profile, and latent transition analysis. *Learning and Individual Differences*, 66, 4–15. <https://doi.org/10.1016/j.lindif.2018.04.010>
- İşeri, E. T., & Gök, S. (2025). Examination of pre-service teachers' educational philosophy tendencies. *International Journal of Turkish Education Sciences*, 13(1), 285–319. <https://doi.org/10.46778/goputeb.1618282>
- Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.
- Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology*, 105(3), 805–820. <https://doi.org/10.1037/a0032583>
- Kurt, Ş. H. (2022). The relationship between preschool teachers' educational philosophy tendencies and higher-level thinking skills. *Ege Journal of Education*, 23(3), 319–333. <https://doi.org/10.12984/eggeefd.1085860>
- Meij, E., Smits, A., & Meeter, M. (2025). Exploring teachers' beliefs about learning principles. *Frontiers in Education*, 10, 1576123. <https://doi.org/10.3389/feduc.2025.1576123>
- Muthén, B., & Muthén, L. K. (2000). Integrating person-centered and variable-centered analyses: Growth mixture modeling with latent trajectory classes. *Alcoholism: Clinical and Experimental Research*, 24(6), 882–891. <https://doi.org/10.1111/j.1530-0277.2000.tb02070.x>
- OECD. (2015). Teaching beliefs and practice. In *Education at a glance 2015: OECD indicators*. OECD Publishing. <https://doi.org/10.1787/eag-2015-11-en>
- Oğuz, A., Altinkurt, Y., Yılmaz, K., & Hatipoğlu, S. (2014). The relationship between teachers' educational beliefs and learner autonomy support behaviors. *Turkish Journal of Educational Studies*, 1(1), 37–78.
- Öpengin, E., & Bal Sezerel, B. (2023). The cognitive profiles of gifted children: A latent profile analysis using the ASIS. *Journal of Pedagogical Research*, 7(4), 400–413. <https://doi.org/10.33902/JPR.202322752>
- Pajares, M. F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research*, 62(3), 307–332. <https://doi.org/10.3102/00346543062003307>
- Park, J. Y., Kim, S., & Chen, X. (2024). Measurement invariance of the teachers' awareness scale in content-integrated education for multilingual learners. *Frontiers in Education*, 9, 1309476. <https://doi.org/10.3389/feduc.2024.1309476>
- Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Developmental Review*, 41, 71–90. <https://doi.org/10.1016/j.dr.2016.06.004>
- Şahan, H. H. (2021). The relationship of prospective teachers' educational philosophy and life-long learning tendencies to their teaching-learning process competencies. *Pegem Journal of Education and Instruction*, 10(4), 1325–1367. <https://doi.org/10.14527/pegegog.2020.040>
- Schel, J., Dresel, M., Daumiller, M., & Berthold, K. (2025). A latent profile analysis for teacher education students' learning: An overview of competencies in self-regulated learning. *Frontiers in Psychology*, 16, 1527438. <https://doi.org/10.3389/fpsyg.2025.1527438>
- Sharma, M., Chakraborty, A., & Singh, N. (2024). Measuring teacher beliefs about factors that promote classroom social and emotional learning. *Social and Emotional Learning: Research, Practice, and Policy*, 3, 100049. <https://doi.org/10.1016/j.sel.2024.100049>
- Spurk, D., Hirschi, A., Wang, M., Valero, D., & Kauffeld, S. (2020). Latent profile analysis: A review and “how to” guide of its application within vocational behavior research. *Journal of Vocational Behavior*, 120, 103445. <https://doi.org/10.1016/j.jvb.2020.103445>
- Thurm, D. (2018). Teacher beliefs and practice when teaching with technology: A latent profile analysis. In L. Ball, P. Drijvers, S. Ladel, H. S. Siller, M. Tabach, & C. Vale (Eds.), *Uses of technology in primary and secondary mathematics education: Tools, topics and trends* (pp. 409–419). Springer. https://doi.org/10.1007/978-3-319-76575-4_25
- Wang, X., Gao, Y., Sun, F., & Wang, Q. (2024). Unveiling the tapestry of teacher belief research: Tracing the present and forging the future through bibliometric analysis. *Current Psychology*, 43, 15659–15672. <https://doi.org/10.1007/s12144-023-05546-5>
- Wolf, S., & Brown, A. (2023). Teacher beliefs and student learning. *Human Development*, 67(1), 37–54. <https://doi.org/10.1159/000529450>