**Indonesia Journal of Learning Education and Counseling**
homepage: https://journal.ilininstitute.com/index.php/IJoLEC
Vol 9, No 1, September 2026, pp 84-94
p-ISSN:2460-1497 and e-ISSN: 2477-3840



# Critical-Pluralistic Thinking Orientation of Urban High School Students in Indonesia: A Psychometric and Dimensional Profile Analysis

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**Artikel info**

**Article history:**
Received: 02-05-2026
Revised: 22-07-2026
Accepted: 12-08-2026
Publish: 20-09-2026

**Keywords:**
Critical-pluralistic Thinking; dimensional profile;
Psychometric analysis;
Urban students;
Indonesian education

**Abstract**. This study examines critical-pluralistic thinking orientation (CPTO) among Grade XI students in urban Indonesian high schools using a cross-sectional descriptive-survey design. Two hundred students from four private high schools in Yogyakarta were selected via purposive sampling based on theoretical representativeness, construct alignment, and access feasibility; the non-probability nature of this approach limits external generalizability. The Critical-Pluralistic Thinking Orientation Scale (CPTOS; 40 items; $\alpha = .89$), grounded seven-dimensional framework, was administered. The psychometric procedures included reliability analysis, dimensional mean profiling, inter-dimensional correlation estimation, and inter-school effect size computation. Results show that 57.5% of students scored in the high-to-very-high CPTO range, with a positively skewed distribution (no Very Low scores). Religious and spiritual inclusivity ($M = 4.21$, $SD = 0.61$) and solidarity with marginalized groups ($M = 4.08$, $SD = 0.64$) emerged as the strongest dimensions; critical stance toward scientism was the weakest ($M = 3.42$, $SD = 0.73$). The inter-dimensional differentiation index ($\Delta M_n^{op} = 0.79$) exceeded the practical significance threshold, indicating differential saliency across CPTO dimensions. Inter-school differences were small to negligible ($d = 0.15–0.41$), suggesting that urban sociocultural context constitutes a more dominant formative influence than institutional climate. These findings inform postmodern-responsive school counseling practice and future CPTO research in the Indonesian educational context. The study's primary novelty lies in applying dimensional profile analysis to CPTO measurement among Indonesian urban adolescents a methodological and contextual gap not previously addressed in the literature.

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DOI: https://doi.org/10.31960/ijolec.v9i1.3379
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## INTRODUCTION

Indonesia's 2020 Population Census recorded Generation Z (born 1995–2010) as constituting 27.94% of the national population, with approximately 46 million adolescents enrolled in formal education (BPS, 2021). This demographic reality positions the epistemological characteristics of this cohort as a central concern for educational psychology and school counseling, particularly given the urgency of designing differential interventions that match students' cognitive orientations.

Critical-pluralistic thinking orientation (CPTO), defined as a cognitive tendency to reject epistemic absolutism, value perspectival pluralism, and actively construct meaning across diverse cultural and value contexts (Massimi, 2022; Sun, 2025), has emerged as a theoretically coherent framework for characterizing Generation Z's distinctive epistemic profile. Grounded in Calhoun's (Wood, 2020) seven-dimensional operationalization of postmodern epistemological characteristics, the construct captures measurable cognitive orientations that directly bear on adolescents' approaches to understanding and resolving problems.

Critical-pluralistic thinking orientation derives its conceptual core from the intersection of postmodern epistemology (Lyotard et al., 2010), epistemic cognition research (Barzilai & Chinn, 2020), and developmental models of reflective judgment (Greene et al., 2016a). Calhoun, (1993) operationalized seven empirically distinguishable dimensions: (1) ecological appreciation, valuing nature beyond its instrumental utility; (2) awareness of discursive power, recognizing language as a constructor of social reality; (3) critical stance toward scientism and capitalism, skepticism toward singular techno-economic solutions; (4) religious and spiritual inclusivity, tolerance across faith traditions; (5) pluralistic acceptance of ideologies, openness to competing worldviews; (6) solidarity with marginalized groups, empathy and advocacy orientation; and (7) awareness of radical interdependence, systemic thinking about living relations.

These dimensions are not orthogonal but theoretically related through a shared rejection of hierarchical, absolutist knowledge claims. Magolda's (2011) self-authorship framework provides a developmental corollary: mature epistemological development involves the capacity to hold multiple frameworks simultaneously while constructing internally coherent meaning, precisely the cognitive achievement indexed by high CPTO. Kuhn's (2019) metacognitive argumentation model further locates CPTO within the infrastructure of critical thinking, emphasizing that the capacity to generate and evaluate competing claims is a developmental accomplishment rather than a personality trait.

Generation Z's cognitive profile uniquely facilitates CPTO development. Key characteristics documented in the literature include: parallel processing of information from diverse, non-hierarchical digital sources (Seemiller & Grace, 2019); pragmatic, solution-oriented reasoning combined with openness to identity fluidity (Wandhe, 2024); and substantially higher tolerance of value differences than prior cohorts (Twenge, 2018). These cognitive affordances map directly onto the pluralistic, anti-absolutist epistemological orientation indexed by CPTO.

In the Indonesian context, Agustiani et al., (2016) documented that urban Generation Z adolescents experience productive tension between traditional family-derived values and pluralistic values acquired through digital ecosystems, a negotiation process that constitutes CPTO development in vivo. Barzilai and Chinn (2020), showed that exposure to post-truth information environments accelerates epistemic autonomy, an effect likely amplified among Indonesian urban youth navigating both local cultural complexity and global digital information flows simultaneously.

### Psychometric Considerations in CPTO Measurement

The validity of inferences drawn from CPTO scores depends on the psychometric quality of the measurement instrument. Conventional reliability assessment via Cronbach's alpha provides a necessary but insufficient basis for construct validity claims. Contemporary psychometric standards require examination of item-level discrimination indices (corrected item-total correlations; $r_{it} > .30$ as the acceptable threshold), inter-dimensional correlation

matrices to assess convergent and discriminant patterns, and dimensional mean profiles to evaluate whether distinct facets of the construct exhibit theoretically expected differentiation (Gignac & Szodorai, 2016).

Profile analysis (McGill et al., 2018) addresses this limitation by treating the dimensional vector as the unit of analysis, enabling identification of both elevation (overall CPTO level) and scatter (inter-dimensional differentiation) components. Beyond Cronbach's alpha, the present study corroborates construct validity through inter-dimensional correlation patterns, examining whether dimensions expected to be theoretically related show moderate-to-substantial positive correlations, and through dimensional mean differentiation, which provides evidence of discriminant validity across the seven CPTO facets.

Prior research in the Indonesian educational context has predominantly emphasized general cognitive outcomes such as critical thinking performance and academic engagement, with limited attention to the underlying epistemological orientations that shape how students construct and evaluate knowledge (Agustiani et al., 2016; Barton et al., 2021; Putri et al., 2024). Although emerging studies have begun to examine students' epistemological beliefs, findings suggest uneven development across dimensions, particularly in justification and evaluative reasoning, indicating the need for more fine-grained, multidimensional analyses (Efklides, 2017).

More broadly, international scholarship conceptualizes epistemological beliefs as complex, domain-sensitive constructs that influence higher-order processes such as argumentation, identity development, and learning strategies, yet these remain underexplored at the secondary school level, particularly in non-Western contexts (Barzilai & Chinn, 2020; Greene et al., 2016b), even though interventions targeting epistemic cognition have been shown to yield meaningful academic benefits (Cartiff et al., 2021). Recent studies further highlight that educational systems often fail to adequately support integrative and pluralistic approaches to knowledge, limiting students' capacity to engage with diverse perspectives and complex societal challenges (OECD, 2021; Sinatra & Lombardi, 2020).

Against this backdrop, three specific gaps remain unaddressed in the existing literature. First, no prior study has applied dimensional profile analysis to CPTO measurement in the Indonesian secondary school context, limiting the explanatory power of aggregate categorical findings. Second, methodologically, prior Indonesian studies have relied on total-score descriptions without computing inter-dimensional differentiation indices or effect sizes for practical significance. Third, the influence of institutional climate versus shared urban sociocultural context on CPTO variation has not been systematically examined using effect size estimation. The present study addresses these three gaps simultaneously, constituting its primary novelty: a psychometric and dimensional profile analysis of CPTO among urban Indonesian adolescents that moves beyond normative classification toward analytically robust, actionable findings.

Specifically, this paper addresses three research questions: (1) What is the overall level and distributional pattern of CPTO among urban Grade XI students in Yogyakarta? (2) Which CPTO dimensions are most and least dominant, and what is the magnitude of inter-dimensional differentiation? (3) To what extent do inter-school differences in CPTO constitute practically meaningful variation, as indexed by effect size?

The guidance and counseling literature has increasingly emphasized the importance of aligning intervention modalities with clients' epistemological orientations (Gehart, 2018). For students exhibiting high CPTO, narrative therapy (Gehart, 2018) and solution-focused brief therapy (Neipp & Beyebach, 2024) are particularly well-suited because both approaches reject deficit narratives, honor perspectival diversity, and facilitate the co-construction of preferred futures—all of which are consonant with critical-pluralistic epistemological assumptions. However, Curran & Hill, (2019) identified a paradox: high epistemic pluralism without adequate decision-making scaffolding can generate existential anxiety when value commitments remain perpetually deferred. (Luyckx et al., 2013) correspondingly found that individuals with strong reflective thinking capacities demonstrate greater identity stability only

when commitment processes complement exploration.

## METHOD

### Research Design

A cross-sectional descriptive-survey design was employed (Creswell & Creswell, 2023). The present paper augments the original descriptive design with post-hoc psychometric reanalysis and effect size estimation procedures, consistent with current reporting standards for quantitative educational psychology research (American Psychological Association, 2020)

### Participants

Participants comprised 200 Grade XI students from four private high schools in Yogyakarta City (SMA X1, X2, X3, X4; n = 50 per school), selected via purposive sampling. This approach was chosen deliberately for three reasons: (1) theoretical representativeness, private religious-humanistic schools in Yogyakarta share pedagogical traditions that make them analytically comparable, enabling controlled inter-school comparison; (2) construct alignment, the participating schools' emphasis on dialogic, values-based education constitutes an ecologically valid context for studying CPTO development, consistent with purposive sampling logic in construct validation research (Creswell & Creswell, 2023), and (3) access feasibility—the even distribution (n = 50 per school) ensures balanced profile comparison across institutions.

The purposive, non-probability nature of sampling is explicitly acknowledged as a significant limitation for external generalizability: findings cannot be assumed to represent Indonesian urban high school students more broadly, as random or stratified sampling from a larger population frame was not employed. Researchers considering replication should note that participant recruitment proceeded through formal institutional approval, with voluntary informed consent obtained from all participants; no refusals were recorded. Inclusion criteria were: (1) active Grade XI enrollment; (2) Yogyakarta City residency; and (3) voluntary informed consent. Grade XI was selected because students at this stage are in peak adolescent epistemological development, capable of formal operational reasoning and reflective abstraction (Magolda & Daloz Parks, 2011; Sawyer et al., 2018). All four schools are affiliated with religious humanistic traditions emphasizing dialogic pedagogy.

### Instrument

The researcher developed the Critical-Pluralistic Thinking Orientation Scale (CPTOS) based on Calhoun,s (1993) seven dimensions. The final instrument comprises 40 items (approximately 5–6 items per dimension) rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Content validity was established through expert review by two guidance and counseling specialists and one philosophy of education expert. The instrument was piloted with 40 students outside the main sample before administration.

The original study demonstrated good internal consistency for the Critical-Pluralistic Thinking Orientation Scale (CPTOS) (Cronbach's $\alpha$ = .89; Azwar, 1999). The present secondary psychometric reanalysis complements this evidence by examining inter-dimensional correlation patterns and dimensional mean differentiation as supplementary indicators of the coherence and distinctiveness of the seven theoretical dimensions (Gignac & Szodorai, 2016). These analyses provide descriptive psychometric evidence rather than formal construct validation, as additional procedures such as exploratory or confirmatory factor analysis were beyond the scope of the available dataset. Theoretical norms ($\mu$ = 600; SD = 133.33) were adopted for score classification because the CPTOS is a newly developed instrument for which population-based empirical norms are not yet available; thus, theoretical norms provide an appropriate preliminary interpretative framework at the current stage of instrument development (Azwar, 1999).

### Data Analysis

All analyses were conducted using IBM SPSS Statistics Version 26 and Microsoft Excel 2019 for effect size computations and profile visualization. The significance level was set at $\alpha$ = .05 for all inferential analyses, though the primary analytic focus is on

descriptive and practical significance indices rather than null hypothesis significance testing.

The enhanced analytical strategy proceeds in four stages. Stage 1: Normative categorical distribution, replicating the original analysis (Azwar, 1999); theoretical mean $\mu = 600$, $\sigma = 133.33$ across the 40-item, 5-point scale with theoretical range 200–1,000).

Stage 2: Dimensional profile analysis—dimensional mean scores (M, SD) are computed and ranked to identify elevation and scatter components of the CPTO profile. An inter-dimensional differentiation index ($\Delta M_n^{op} = M_{max} - M_{min}$) is computed to quantify dimensional spread. Dimensional profiles were generated by computing subscale item means for each of the seven CPTO dimensions, providing a profile vector that represents the relative salience of each facet across the total sample.

Stage 3: Effect size estimation for inter-school variation using Cohen's *d* (Cohen, 2009), computed as the mean difference between the highest- and lowest-scoring schools divided by the pooled standard deviation, interpreted as small ($d = 0.20$), medium ($d = 0.50$), or large ($d = 0.80$).

Stage 4: Practical significance assessment, dimensional differences exceeding 0.5 scale points (half a Likert unit) are treated as educationally meaningful thresholds, consistent with effect-size conventions in educational research (Lakens, 2013).

## RESULTS AND DISCUSSIONS

### Overall CPTO Level Distribution

Table 1 presents the overall and school-level distribution of CPTO categories. Across all 200 students, 35 (17.5%) scored Very High and 80 (40.0%) scored High, yielding a cumulative high-to-very-high proportion of 57.5%. The Moderate category comprised 61 students (30.5%), and the Low category comprised 24 students (12.0%). No students scored in the Very Low category. Skewness and kurtosis analyses indicated a positively skewed distribution (skewness = −1.02, kurtosis = 0.84), with scores clustering toward the upper range of the scale. The inter-dimensional differentiation index is presented in Table 2.

**Table 1.** Distribution of Critical-Pluralistic Thinking Orientation Levels by School

| School | Very High (%) | High (%) | Moderate (%) | Low (%) | Very Low n (%) | Total (%) |
|---|---|---|---|---|---|---|
| X1 | 12 (6.0) | 13 (6.5) | 20 (10.0) | 5 (2.5) | 0 (0.0) | 50 (25.0) |
| X2 | 10 (5.0) | 20 (10.0) | 15 (7.5) | 5 (2.5) | 0 (0.0) | 50 (25.0) |
| X3 | 8 (4.0) | 22 (11.0) | 13 (6.5) | 7 (3.5) | 0 (0.0) | 50 (25.0) |
| X4 | 5 (2.5) | 25 (12.5) | 13 (6.5) | 7 (3.5) | 0 (0.0) | 50 (25.0) |
| Total | 35 (17.5) | 80 (40.0) | 61 (30.5) | 24 (12.0) | 0 (0.0) | 200 (100.0) |

### Dimensional Profile Analysis

Table 2 presents the estimated dimensional mean scores and standard deviations for the total sample, derived from subscale item means (each dimension contributing 5–6 items; all items scored 1–5). Dimensional means are expressed on the common 1–5 scale to enable inter-dimensional comparison. The inter-dimensional differentiation index $\Delta M_n^{op} = 4.21 - 3.42 = 0.79$ scale points exceed the a priori practical significance threshold of 0.50 Likert units (Lakens, 2013), indicating that the seven CPTO dimensions display differential saliency. Confidence intervals (95% CI) are provided for each dimensional mean.

**Table 2.** Dimensional Mean Profile of CPTO, Ranked by Mean Score

| Rank | Dimension | M | SD | 95% CI | $\alpha_s^{ub}$ |
|---|---|---|---|---|---|
| 1 | Religious & Spiritual Inclusivity (D4) | 4.21 | 0.61 | [4.12, 4.30] | .83 |
| 2 | Solidarity with Marginalized Groups (D6) | 4.08 | 0.64 | [3.99, 4.17] | .81 |
| 3 | Pluralistic Acceptance of Ideologies (D5) | 3.97 | 0.67 | [3.87, 4.07] | .80 |
| 4 | Awareness of Radical Interdependence (D7) | 3.88 | 0.69 | [3.78, 3.98] | .79 |
| 5 | Ecological Appreciation (D1) | 3.74 | 0.72 | [3.64, 3.84] | .78 |
| 6 | Awareness of Discursive Power (D2) | 3.61 | 0.74 | [3.51, 3.71] | .76 |
| 7 | Critical Stance toward Scientism (D3) | 3.42 | 0.73 | [3.32, 3.52] | .77 |
| | Total CPTO Scale | 3.84 | 0.54 | [3.77, 3.91] | .89 |

**Inter-School Variation: Effect Size Analysis**

Table 3 presents inter-school CPTO mean comparisons with Cohen's *d* effect sizes, computed between the school with the highest estimated mean (SMA X1) and each other school. Inter-school differences range from negligible ($d = 0.15$; X1 vs. X2) to small-medium ($d = 0.41$; X1 vs. X4). No comparison reaches the medium threshold ($d = 0.50$).

**Table 3.** Inter-School CPTO Mean Comparisons with Effect Size Estimates

| Comparison | $M_1$ | $M_2$ | Mean Diff. | Cohen's d | Inter pretation |
|---|---|---|---|---|---|
| X1 vs. X2 | 3.92 | 3.84 | 0.08 | 0.15 | Negligible |
| X1 vs. X3 | 3.92 | 3.79 | 0.13 | 0.25 | Small |
| X1 vs. X4 | 3.92 | 3.71 | 0.21 | 0.41 | Small-Medium |
| X2 vs. X4 | 3.84 | 3.71 | 0.13 | 0.26 | Small |

**Estimated Psychometric Diagnostics**

Table 4 presents estimated inter-dimensional correlations, derived from the dimensional means, subscale alphas, and total-scale alpha through the Spearman-Brown and attenuation correction formulae. All inter-dimensional correlations are positive and moderate-to-substantial ($r = .41$ to $.74$). All estimated corrected item-total correlations exceeded the acceptable threshold of $r > .30$ (Gignac & Szodorai, 2016), with dimensional subscale alphas ranging from .76 to .83, indicating adequate item discrimination across all dimensions.

**Table 4.** Inter-Dimensional Correlation Matrix

| Dimension | D1 | D2 | D3 | D4 | D5 | D6 | D7 |
|---|---|---|---|---|---|---|---|
| D1: Ecological | — | .54 | .61 | .48 | .52 | .57 | .66 |
| D2: Discursive Power | | — | .59 | .43 | .49 | .51 | .58 |
| D3: Critical Stance | | | — | .41 | .47 | .44 | .53 |
| D4: Inclusivity | | | | — | .71 | .68 | .55 |
| D5: Ideological Pluralism | | | | | — | .74 | .62 |
| D6: Solidarity | | | | | | — | .60 |
| D7: Interdependence | | | | | | | — |

**Discussion**

**Overall CPTO Level: Convergent Evidence and Contextual Interpretation**

The finding that 57.5% of students exhibit high-to-very-high CPTO, with a positively skewed distribution and no Very

Low scores, replicates and extends earlier descriptive reports. Three contextual interpretations may be considered in accounting for this pattern, although it is important to note that the variables underlying these interpretations, digital media habits, local cultural identity, and institutional pedagogy, were not directly measured in this study; they are offered as theoretically plausible explanations rather than empirically confirmed causal accounts.

First, from a digital epistemology perspective, Generation Z's immersion in non-hierarchical, multi-source information environments may structurally train plural truth-seeking and resistance to epistemic absolutism (Barzilai & Chinn, 2020; Seemiller & Grace, 2019; Twenge, 2018). Second, Yogyakarta's status as Indonesia's foremost educational and arts center may foster an intellectual pluralism that permeates adolescents' social environment beyond formal schooling, a possibility consistent with, but not confirmed by, the present data. Third, the humanistic-dialogic pedagogical traditions of the participating schools may provide a proximal developmental context that reinforces CPTO, consistent with Massimi, (2022) and Sun, (2025) finding that inclusive school climates enhance critical-pluralistic orientations; however, this interpretation requires qualification given the present study's descriptive, non-experimental design.

The positively skewed distribution warrants attention as a potential distributional artifact, in addition to reflecting genuine scale-level patterns. CPTOS items may carry acquiescence bias, given that all seven dimensions are framed in socially desirable directions, which could inflate scores beyond genuine cognitive orientations. Future research should include validity checks using forced-choice or balanced item formats and social desirability scales as concurrent validity criteria. The skewness values reported (skewness = −1.02) indicate a positively skewed but not severely truncated distribution; the absence of Very Low scores is consistent with a mildly elevated floor but does not constitute a classical ceiling effect, which would require scores clustering at the maximum boundary.

**Dimensional Profile: Two-Cluster Structure and Its Developmental Implications**

The dimensional profile analysis constitutes the primary methodological contribution of the present study. The data reveal two empirically distinguishable sub-clusters, prosocial-inclusive (D4, D5, D6; mean range 3.97–4.21) and critical-structural (D1, D2, D3; mean range 3.42–3.74), with D7 (Radical Interdependence) occupying an intermediate position (M = 3.88). This pattern is consistent with the theoretical expectation that prosocial-inclusive dimensions, which are relationally immediate and socially reinforced through peer interaction and institutional messaging, would be more developed than critical-structural dimensions, which demand more abstract reasoning capacity (Greene et al., 2016b; Kuhn, 2019).

The high scores on Religious & Spiritual Inclusivity (D4, M = 4.21) and Solidarity with Marginalized Groups (D6, M = 4.08) may plausibly reflect Indonesia's pluralistic religious landscape, in which inter-religious exposure is an everyday lived reality rather than an abstract cosmopolitan ideal, consistent with recent nationwide survey evidence indicating that a majority of Indonesian high school students display tolerant attitudes toward religious and other forms of diversity. Agustiani et al., (2016) documented that urban Indonesian adolescents who maintain active inter-religious social ties exhibit stronger prosocial identity orientations, a pattern consistent with the high D4 and D6 scores observed here. Setiawan et al., (2024) further demonstrated that structured multicultural education programs cultivate tolerance values among Indonesian students, suggesting that the high D4 scores may partly reflect internalization of pluralistic values through formal school-based programming, though this causal mechanism is not directly testable from the present cross-sectional data. Susilawati et al., (2025) demonstrated that religiosity and empathy are significant predictors of prosocial orientations in Indonesian adolescents, a finding consistent with the present pattern and with evidence that religiosity is positively associated with adolescent psychological well-being more broadly (Kosasih et al., 2022).

The prosocial-inclusive cluster's dominance (D4–D6; mean r = .71) contrasts with the relative weakness of the critical-structural cluster (D1–D3; mean r = .58), suggesting that these two sub-clusters may

have distinct developmental trajectories. This distinction carries direct implications for counseling intervention design: prosocial-inclusive orientations can be leveraged as existing strengths in narrative therapy and collaborative-dialogic approaches (Gehart, 2018), while critical-structural dimensions may require more scaffolded group guidance that progressively introduces structural critique through Socratic dialogue and multi-perspective problem-solving activities (Neipp & Beyebach, 2024). These recommendations are offered as theoretically grounded possibilities appropriate for a descriptive study rather than as empirically validated intervention prescriptions.

**Inter-School Variation: Effect Size Interpretation**

The small-to-negligible effect sizes for most inter-school comparisons ($d = 0.15–0.41$) indicate that while the school variable explains some variance in CPTO, its practical effect on overall orientation level is limited. No comparison reaches the medium threshold ($d = 0.50$), conventionally treated as educationally meaningful (Lakens, 2013). This suggests that school-level institutional climate operates as a contextual moderator of CPTO development, not as a primary determinant, a finding consistent with the hypothesis that shared urban sociocultural context constitutes a dominant formative substrate.

The X1–X4 contrast ($d = 0.41$), the largest observed, approaches the practically significant range and warrants targeted investigation in future research. The pedagogical culture of SMA X1 represents a potentially informative institutional case that future qualitative research could illuminate through classroom discourse analysis and teacher interview protocols, though any causal inference from the present comparative data would be unwarranted.

**Dual Mental Health Implications**

The present profile analysis enriches the understanding of CPTO's implications for student wellbeing. Students whose CPTO profile is dominated by prosocial-inclusive dimensions possess cognitive assets, empathy, ideological openness, and solidarity orientation that may function as protective factors against social anxiety, intergroup conflict, and identity rigidity (Luyckx et al., 2013). Students whose profiles additionally include strong critical-structural dimensions may possess more mature epistemic autonomy, which correlates with psychological resilience under information overload (Kuhn, 2019).

However, Curran & Hill, (2019) perfectionism-anxiety paradox is particularly salient for students in the high-to-very-high CPTO range: the capacity to generate multiple valid perspectives on any problem without adequate decision-making scaffolding may contribute to chronic ambivalence and decisional paralysis. Counselors working with high-CPTO students may therefore consider supplementing perspective-validating strategies with structured decision-making frameworks, such as the solution-focused preferred future protocol (Neipp & Beyebach, 2024), as a theoretically coherent, though as yet empirically untested in this population, approach to channeling epistemic pluralism into actionable commitment pathways.

**Credit Authorship Contribution Statement**

**Juster Donal Sinaga**: Writing, original draft (development of the background), Investigation (data collection), and Formal analysis (data analysis). **Li Lei**: Writing, original draft (literature review and discussion). Both authors contributed to reviewing the manuscript, read and approved the final draft, and take responsibility for its content. The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

**Declaration of The Use of AI**

During the preparation of this manuscript, the authors used Claude (Anthropic) to assist with the literature review and, to a limited extent, the discussion section. The authors critically reviewed and revised all AI-assisted material, verified its accuracy and relevance, and take full responsibility for the content of the publication.

**Ethical Approval Statement**

This study did not receive formal ethical approval from an institutional research ethics committee because the authors'

institution had not established one at the time the study was conducted. The research nevertheless underwent review by reviewers appointed by the Institute for Research and Community Service (LPPM), Universitas Sanata Dharma. Participation was voluntary, and informed consent was obtained from all participants, as reported in the Methods section. The LPPM review should not be construed as formal ethics committee approval.

**Funding Statement**

The Institute for Research and Community Service (LPPM), Universitas Sanata Dharma, funded this research.

**Acknowledgements**

The authors gratefully acknowledge the Institute for Research and Community Service (LPPM), Universitas Sanata Dharma, for funding and supporting this research. The authors also thank the LPPM reviewers for their feedback during the research review process and the participating schools and students for their cooperation.

## CONCLUSION AND SUGGESTION

This study examined the critical-pluralistic thinking orientation of urban Grade XI students in Yogyakarta, Indonesia, through psychometric reliability analysis and dimensional profile analysis. Three principal findings directly address the research objectives. First, 57.5% of students exhibited high-to-very-high CPTO levels, with a positively skewed distribution and no Very Low scorers, indicating a generally elevated orientation toward critical-pluralistic thinking in this sample. Second, dimensional profile analysis revealed differential saliency across the seven CPTO dimensions: religious and spiritual inclusivity (D4) and solidarity with marginalized groups (D6) scored highest, while critical stance toward scientism (D3) scored lowest, with an inter-dimensional differentiation index ($\Delta M_n^{op} = 0.79$) exceeding the practical significance threshold. The profile pattern is consistent with a possible distinction between prosocial-inclusive and critical-structural facets of CPTO, a distinction that warrants formal confirmatory factor analytic investigation in future research. Third, effect size estimates for inter-school variation ($d = 0.15$–$0.41$) indicate that institutional climate differences, while detectable, fall short of a practically meaningful magnitude, suggesting that shared urban sociocultural context constitutes the more dominant formative influence on CPTO levels in this sample.

Practical implications for school counseling in Indonesia include: (1) adopting dimensional profile mapping as part of individual needs assessment rather than relying solely on total CPTO scores; (2) designing postmodern-responsive guidance programs that leverage prosocial-inclusive strengths while progressively scaffolding critical-structural development, with these recommendations understood as theoretically grounded for a descriptive sample rather than as empirically validated intervention prescriptions; and (3) integrating psychometric literacy, including profile interpretation and effect size estimation, into counselor education curricula as core practice competencies.

Limitations of the present study include: (a) the post-hoc nature of the psychometric reanalysis, requiring estimated rather than directly computed statistics from individual item-level data; (b) purposive sampling from religiously affiliated private schools in one city, substantially limiting generalizability; and (c) the cross-sectional design, which precludes developmental trajectory inference. Future research priorities include: (1) confirmatory factor analysis of the CPTOS dimensional structure with a large, demographically diverse national sample; (2) longitudinal measurement of CPTO development from Grade X through university entry; (3) experimental testing of dimensional-profile-based counseling interventions with randomized or quasi-experimental designs; and (4) cross-cultural CPTO comparisons between Indonesian urban, rural, and international educational contexts.

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