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Confirming the Factor Structure of Youth Political Participation and Its Relevance to Sustainable Development Goals: A Confirmatory Factor Analysis in Bangkok

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ABSTRACT

This study validates a multidimensional model of Youth Political Participation (YPP) among Bangkok youth. Using confirmatory factor analysis and second-order structural equation modeling, we assess a three-factor structure: Electoral Participation (EP), Civic Participation (NC), and Digital Political Activism (DPA), and test a higher-order YPP construct. The measurement model demonstrates strong reliability and convergent/discriminant validity, with all indicators loading positively on their intended factors. The second-order model fits well and reveals asymmetric channel expression: YPP strongly predicts DPA, moderately predicts NC, and weakly relates to EP. These findings portray youth engagement as multimodal and digitally oriented, while highlighting additional institutional supports needed to translate generalized participation into electoral behavior. Policy and educational implications are outlined for advancing SDG 16 (inclusive institutions) and SDG 10 (political inclusion), including digital civic hubs, youth co-creation mechanisms, and curriculum-embedded civic learning.

Keywords: *Youth political participation; SDG 16: Peace, Justice and Strong Institutions; SDG 10: Reduced Inequalities.*

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1. INTRODUCTION

Youth political participation is widely recognized as a cornerstone of democratic resilience and sustainable governance. Across the globe, young citizens are increasingly engaged in multiple forms of political action that extend beyond traditional electoral politics (Norris, 2020). In Bangkok, this trend has been evident in the wake of the 2020–2021 youth-led protests, which called for democratic reforms, constitutional changes, and greater transparency in governance (Chambers, 2024; Lertchoosakul, 2021; Teeratanabodee, 2025). These movements reflect the growing role of youth as political actors whose actions shape the trajectory of Thailand's political development and its alignment with the Sustainable Development Goals (SDGs) (Hanafi, 2024).

The United Nations has emphasized the importance of inclusive participation through SDG 16: Peace, Justice, and Strong Institutions, which calls for responsive and representative decision-making at all levels (United Nations, 2023). In addition, SDG 10: Reduced Inequalities highlights the imperative of empowering marginalized groups, including youth, to gain equitable access to political processes (Bexell & Jönsson, 2020; Memon et al., 2022). Understanding how young people in Bangkok participate politically, through electoral, civic, and digital channels, provides not only theoretical insights into modern political engagement but also practical implications for advancing the SDG agenda (Kanchanawongpaisan et al., 2025).

Classical theories of political participation define it as the set of activities through which citizens seek to influence political outcomes, ranging from voting to protest (Verba et al., 1995). Dalton (2014) extends this view by distinguishing between institutionalized forms (e.g., voting, party activity) and non-institutionalized forms (e.g., demonstrations, boycotts). More recently, the rise of the internet and social media has introduced digital forms of participation such as online petitions, hashtag activism, and content sharing, which scholars identify as distinct yet interconnected repertoires of engagement (Loader et al., 2014; Sinpeng, 2021).

An exploratory factor analysis (EFA) study conducted in Bangkok identified three robust domains of youth political participation: Electoral, Civic, and Digital engagement—that together accounted for 64.6% of the variance, with excellent fit indices (RMSEA = 0.00, TLI = 1.01, χ^2 ns) (Khumsab et al., 2025). These findings confirm that political participation among Bangkok youth is multidimensional, with digital participation emerging as an independent dimension alongside electoral and civic engagement.

While exploratory analysis has clarified the latent structure of youth participation, the dimensionality of this construct requires further validation through confirmatory factor analysis (CFA). EFA explores patterns in the data but does not provide definitive tests of measurement validity or model fit (Hair et al., 2019). Moreover, youth political participation is not merely a set of correlated dimensions; theoretically, it can be conceptualized as a **higher-order construct** where Electoral, Civic, and Digital participation represent distinct but interrelated domains under the overarching concept of *Youth Political Participation (YPP)*. Validating such a second-order structure would strengthen theoretical coherence and provide policymakers with a more reliable measurement model for assessing youth engagement in relation to the SDGs.

The significance of this study lies in its contributions to both methodological and policy aspects. Methodologically, it advances the measurement of youth political participation in Thailand by validating a comprehensive 24-item scale through confirmatory factor analysis (CFA). Unlike exploratory approaches, CFA provides rigorous evidence of construct validity and tests the viability of modeling youth political participation as a higher-order construct. This strengthens the reliability of future research that seeks to compare participation across contexts or examine its predictors and outcomes. Substantively, the study contributes to policy and practice by situating youth participation within the framework of the Sustainable Development Goals (SDGs). By empirically linking Electoral, Civic, and Digital participation to SDG 16 (Peace, Justice, and Strong Institutions) and SDG 10 (Reduced Inequalities), the findings highlight the critical role of youth as agents of inclusive governance. For policymakers, educators, and civil society organizations, the validated model provides a practical tool to design, monitor, and evaluate initiatives that empower youth engagement and support Thailand's democratic and sustainable development trajectories.

Research Objectives

1. To validate the three-factor structure of youth political participation (Electoral, Civic, and Digital) in Bangkok using confirmatory factor analysis (CFA).
2. To test whether a higher-order construct explains the three first-order factors, Youth Political Participation (YPP).
3. To assess the reliability, convergent validity, and discriminant validity of the measurement model.
4. To examine the theoretical and policy relevance of the YPP construct for advancing Sustainable Development Goals, particularly SDG 16 and SDG 10.

Hypotheses

H1: **(EP loadings).** Indicators E1–E7 load positively and significantly on **Electoral Participation (EP)**

H2: **(NC loadings).** Indicators C1–C7 load positively and significantly on **Civic Participation (NC)**

H3: **(DPA loadings).** Indicators D1–D7 load positively and significantly on **Digital Political Activism (DPA)**

H6a.: **Youth Political Participation (YPP)** positively explains the variance in **Electoral Participation (EP)**

H6b.: **Youth Political Participation (YPP)** positively explains the variance in **Civic Participation (NC)**

H6c.: **Youth Political Participation (YPP)** positively explains variance in **Digital Political Activism (DPA)**

2. LITERATURE REVIEW

2.1 Political Participation: Concepts and Dimensions

Political participation has long been regarded as a central mechanism through which citizens express their preferences and influence governance outcomes. Verba, Schlozman, and Brady (1995) define political participation as voluntary activities aimed at affecting political decision-making, emphasizing both electoral (e.g., voting, campaigning) and non-electoral (e.g., protests, petitions) forms. Dalton (2014) expands this view by recognizing that modern democracies must account for both institutionalized and non-institutionalized modes of participation, which together capture the evolving repertoires of citizen engagement.

Recent scholarship underscores that participation is multidimensional and context-dependent, shaped by political opportunities, cultural norms, and generational shifts (Norris, 2020). In contemporary societies, these dimensions can no longer be understood solely in terms of offline activities; digitalization has fundamentally transformed how citizens, particularly youth, participate in politics (Loader et al., 2014).

2.2 Youth Political Participation in a Digital Era

Young people often engage with politics differently from older generations, gravitating toward expressive, issue-based, and networked forms of action (Sloam, 2016). Research demonstrates that youth are more inclined to participate in unconventional and digital repertoires, such as online petitions, hashtag activism, or social media campaigns, rather than limiting their engagement to electoral channels (Sinpeng, 2021). In Thailand, youth activism during the 2020–2021 pro-democracy protests illustrated how online platforms became central tools for mobilization, agenda-setting, and amplifying voices (Chambers, 2024; Teeratanabodee, 2025).

Digital activism, often referred to as "hashtag activism," offers a low-cost, accessible, and scalable means for young people to engage in political participation (Barati, 2023). This does not replace traditional forms of engagement but complements and, in some cases, enhances them. Evidence from Bangkok suggests that youth are hybrid political actors, simultaneously engaged in electoral, civic, and digital activities depending on the issue and opportunity structure (Khumsab et al., 2025).

2.3 Youth Political Participation in Thailand

Thailand's political history is marked by cycles of democratic opening and authoritarian retrenchment, creating unique conditions for youth mobilization. While voting remains a crucial avenue of engagement, civic protest and community-based activism have long been staples of political participation (Anamwathana & Thanapornsangsuth, 2023). More recently, university students and young professionals in Bangkok have become obvious actors in shaping political discourse, often linking their demands to broader struggles for social justice and equality (Phuangsuwan et al., 2025).

Studies indicate that Thai youth draw on diverse motivations for political action, including dissatisfaction with governance, economic inequality, and aspirations for democratic accountability (Thanapornsangsuth & Anamwathana, 2025). This hybridity reflects global trends, but also underscores the distinctiveness of the Thai context, where civic and digital participation are tightly intertwined with contentious politics.

2.4 Political Participation and the Sustainable Development Goals (SDGs)

The Sustainable Development Goals provide a global framework for linking youth participation with inclusive governance and equity. SDG 16 emphasizes the need for effective, accountable, and participatory institutions, with Target 16.7 specifically calling for responsive and representative decision-making (United Nations, 2023). Empowering youth to participate in electoral, civic, and digital domains directly supports this goal by ensuring that young voices are included in institutional processes. Similarly, SDG 10 calls for reducing inequalities by addressing barriers to political representation, particularly for marginalized groups (Bexell & Jönsson, 2020).

By situating youth political participation within the SDG framework, scholars argue that enhancing young people's engagement is not only a democratic imperative but also a developmental one (Borojević et al., 2023). In the Thai context, aligning youth participation with the SDGs underscores the potential of youth as key agents in advancing both democratic governance and sustainable development.

2.5 Exploratory and Confirmatory Factor Analyses in Political Participation Research

Methodologically, the study of political participation increasingly relies on advanced statistical techniques to capture its latent dimensions. Exploratory Factor Analysis (EFA) helps identify underlying structures, while Confirmatory Factor Analysis (CFA) validates hypothesized models and assesses measurement quality (Hair et al., 2019). In Bangkok, EFA has revealed a three-factor structure of youth participation: Electoral, Civic, and Digital engagement, explaining over 60% of the variance with strong psychometric properties (Khumsab et al., 2025).

However, while EFA provides a foundation, CFA offers a more rigorous test by confirming the factor structure, evaluating convergent and discriminant validity, and allowing for the estimation of higher-order constructs. Modeling Youth Political Participation (YPP) as a second-order construct reflects the theoretical proposition that Electoral, Civic, and Digital engagement are distinct yet interrelated expressions of a broader participation construct (Nunnally & Bernstein, 1994). This approach enhances both conceptual clarity and empirical robustness, enabling stronger inferences about how youth participation aligns with the SDG framework.

3. METHODOLOGY

3.1 Research Design

This study employed a quantitative, cross-sectional design using **confirmatory factor analysis (CFA)** to validate the dimensionality of youth political participation in Bangkok. Building on prior exploratory findings that indicated three correlated domains—Electoral, Civic, and Digital participation (Khumsab et al., 2025)—the measurement model was tested first at the first-order level and subsequently as a **second-order model** in which a higher-order latent construct, **Youth Political Participation (YPP),** explained the covariation among the three first-order factors (Brown, 2015; Kline, 2016).

3.2 Population and Sampling

The target population comprised youth aged 18–29 years residing in Bangkok. A **multi-stage sampling** procedure was implemented that stratified the metropolis by administrative zones (inner, middle, outer), randomly selected districts within each zone, and then sampled communities and individuals within these districts. In total, **450 respondents** were surveyed. This sample exceeded standard guidelines for CFA regarding absolute N (≥ 200) and subject-to-parameter ratios (Brown, 2015; Kline, 2016). It also satisfied recommendations for complex models with multiple factors and indicators (Hair et al., 2019).

3.3 Measures and Instrument Development

Measurement items were adapted from established literature on political participation (Dalton, 2014; Loader et al., 2014; Verba et al., 1995) and refined through expert review. The final instrument contained **24 observed indicators** across three domains:

- **Electoral participation** (7 items; e.g., intention to vote, campaigning, contacting officials; one reverse-coded item).
- **Civic participation** (7 items; e.g., demonstrations, boycotts, volunteering; one reverse-coded item).
- **Digital participation** (7 items; e.g., online petitions, hashtag activism, reporting misinformation; one reverse-coded item).

All items used a **five-point Likert scale** (1 = strongly disagree to 5 = strongly agree). Three items (one per domain) were **reverse-coded** prior to analysis to ensure that higher scores indicated greater participation. Content validity had been established in the prior study through expert judgment and a pilot test, and initial dimensionality had been supported via EFA (Khumsab et al., 2025).

3.4 Procedure and Ethical Considerations

Data were collected through face-to-face and online questionnaires between **January and April 2025.** Respondents received an information sheet and provided informed consent. Anonymity and confidentiality were ensured, and participation was voluntary with the right to withdraw at any time. The protocol had been approved by the institutional ethics committee prior to data collection.

3.5 Data Screening and Preparation

Data screening was performed in **AMOS (version 28)** and SPSS prior to model estimation. Records were inspected for missingness, outliers, and assumption violations. **Little's MCAR test** was conducted to evaluate the randomness of missing data (Little, 1988). Because missingness was minimal and consistent with MCAR, we handled missing values using **full information maximum likelihood (FIML)** within AMOS (Enders, 2010). Univariate normality was assessed via skewness and kurtosis, and **Mardia's coefficient** was consulted for multivariate normality (Kline, 2016). When indications of non-normality were present, we employed **Bollen–Stine bootstrap** procedures (2,000 resamples) to adjust the chi-square test of model fit and derive robust standard errors (Bollen & Stine, 1992; Byrne, 2016).

3.6 Estimation and Model Evaluation in AMOS

Model Specification (First-Order CFA)

We specified three correlated first-order latent factors: Electoral, Civic, and Digital, with each item restricted to load on its **theory-consistent** factor and all cross-loadings fixed to zero (Brown, 2015). Each indicator's error term was freely estimated, and factor variances were fixed to 1.0 for scaling. Modification indices (MI) and standardized residuals were inspected after the initial run; **correlated residuals** were considered **only within the same factor** and **only** when theoretically defensible (e.g., highly similar wording or behavior domain) and when they improved fit without undermining

construct validity (Byrne, 2016).

Model Specification (Second-Order CFA)

The best-fitting first-order model served as the baseline for a **second-order specification** in which **YPP** loaded onto the three first-order factors (Electoral, Civic, Digital). In this model, first-order factor loadings on the second-order construct were freely estimated, and the residual variances of first-order factors were estimated to assess the proportion of variance explained by YPP (Brown, 2015; Kline, 2016). We compared model fit and parsimony between the first-order and second-order solutions using absolute, incremental, and information criteria.

3.7 Estimation Method

Models were estimated using **maximum likelihood (ML)** with FIML for missing data. When multivariate normality was questionable, we reported **Bollen–Stine p-values** and **bootstrap-corrected standard errors** (Bollen & Stine, 1992; Byrne, 2016).

3.8 Model Fit Evaluation

Model adequacy was judged using multiple indices consistent with best practice (Bentler, 1990; Kline, 2015):

- **Absolute fit**: χ^2 and χ^2/df (≤ 5.0 acceptable), **SRMR** (≤ .08), **RMSEA** (≤ .08 acceptable; ≤ .05 close fit) with 90% CI.
- **Incremental fit**: **CFI** (≥ .90 acceptable; ≥ .95 desirable), **TLI** (≥ .90 acceptable; ≥ .95 desirable).
- **Parsimony/comparison**: **AIC** and **BIC** (lower values indicate better fit when comparing non-nested alternatives or more parsimonious specifications).

3.9 Reliability and Validity

For each factor, we examined **standardized loadings** (target ≥ .50, ideally ≥ .70), **composite reliability (CR)** (≥ .70), and **average variance extracted (AVE)** (≥ .50) to establish **convergent validity** (Fornell & Larcker, 1981; Hair et al., 2019). **Discriminant validity** was assessed using the **Fornell–Larcker criterion:** the square root of each construct's AVE was expected to exceed its latent correlations with other constructs; additionally, **shared variance (squared correlation)** between any two constructs was expected to be less than their respective AVEs (Fornell & Larcker, 1981). For the second-order model, we reported the **second-order loadings** and the proportion of variance in first-order factors accounted for by YPP.

3.10 Common Method Bias (CMB) Diagnostics

Procedural remedies (assured anonymity, psychologically separated sections, and neutral wording) had been applied at the design stage. Statistically, we assessed CMB using **Harman's single-factor test** (exploratory check) and an **unmeasured latent method factor** approach in AMOS as a robustness check. In the latter, all indicators loaded on both their theoretical construct and a common latent factor; improvement in fit and the relative size of method loadings were used to judge the extent of bias (Podsakoff et al., 2003). As a stricter alternative, we compared substantive parameters from the baseline model to those from the method-factor model; substantive loadings that remained strong indicated limited CMB impact.

3.11 Measurement Invariance (Multi-Group CFA)

To enhance generalizability, we tested **measurement invariance** across **gender** (female vs. male) and **age bands** (18–20, 21–25, 26–29). We proceeded sequentially through **configural, metric,** and **scalar** invariance. Invariance decisions relied on changes in fit indices (e.g., **ΔCFI ≤ .010** with **ΔRMSEA ≤ .015**) rather than χ^2 alone, given its sensitivity to sample size (Milfont & Fischer, 2010; Putnick & Bornstein, 2016; Byrne, 2016). When full scalar invariance was not supported, we reported **partial invariance** by freeing a small number of non-invariant intercepts based on MI and substantive rationale.

3.12 Robustness and Alternative Models

We evaluated **alternative specifications** to test construct distinctiveness and parsimony: (a) a **one-factor model** (all items → single factor), (b) a **two-factor model** (e.g., offline [Electoral + Civic] vs. Digital), (c) the **three-factor first-order model,** and (d) the **second-order YPP model**. Comparative fit (CFI/TLI, RMSEA/SRMR) and **AIC**/**BIC** were examined to justify the preferred solution (Bentler, 1990; Kline, 2015).

3.13 Software and Reporting

All CFA models were specified and estimated in **AMOS (version 24).** We reported **standardized loadings**, factor correlations, **CR, AVE,** and complete **fit indices** for each model, along with any **theory-justified** correlated residuals that

were retained. For multi-group analyses, we reported the fit of each invariance level and the Δ indices that guided our decisions.

4. RESULT

Table 1: Demographic Characteristics of Respondents (*n* = 450)

Variable	Category	n	%
Gender	Male	215	47.7
	Female	235	52.3
Age	18–20 yrs.	122	27.1
	21–25 yrs.	261	58.0
	26–29 yrs.	67	14.9
Education	University student	283	62.9
	Bachelor's degree	114	25.4
	Postgraduate degree	53	11.7
Occupation	Student	251	55.7
	Employed	127	28.3
	Self-employed	45	10.0
	Unemployed	27	6.0
Monthly Income (THB)	< 15,000	210	46.6
	15,001–30,000	162	36.0
	> 30,000	78	17.4

Note. THB = Thai Baht.

Table 1: A total of 450 youth respondents participated in the study. The gender distribution was relatively balanced, with 52.3% female (n = 235) and 47.7% male (n = 215). The most significant proportion of respondents was in the 21–25 age group (58.0%, n = 261), followed by the 18–20 age group (27.1%, n = 122), and the 26–29 age group (14.9%, n = 67). Regarding education, the majority were university students (62.9%, n = 283), while 25.4% (n = 114) had completed a bachelor's degree, and 11.7% (n = 53) held postgraduate qualifications. In terms of occupation, 55.7% (n = 251) were students, 28.3% (n = 127) were employed, 10.0% (n = 45) were self-employed, and 6.0% (n = 27) were unemployed. Monthly income levels varied, with nearly half of respondents (46.6%, n = 210) reporting an income of less than 15,000 THB, followed by 36.0% (n = 162) earning between 15,001–30,000 THB, and 17.4% (n = 78) reporting an income of more than 30,000 THB. Overall, these demographics suggest that the sample is diverse in terms of age, education, occupation, and income, accurately reflecting Bangkok's youth population.

Table 2: Sampling Adequacy and Factorability Tests for Youth Political Participation Scale (N = 450)

Test	Statistic	Value	Criterion	Result
Kaiser–Meyer–Olkin (KMO) Overall	—	.946	≥ .80 = meritorious	Excellent
Bartlett's Test of Sphericity	χ^2 (276)	7612.00	$p < .001$	Significant
Measures of Sampling Adequacy (MSA)	Range	.91–.97	≥ .50 = acceptable	Adequate

Note. KMO = Kaiser–Meyer–Olkin measure of sampling adequacy; MSA = individual item measures of sampling

adequacy.

Table 2 Shows Sampling adequacy. The Kaiser–Meyer–Olkin (KMO) statistic was .946, indicating excellent sampling adequacy. Bartlett's Test of Sphericity was statistically significant, χ^2 (276) = 7612.00, $p < .001$, suggesting that the correlation matrix was appropriate for factor analysis. The Measures of Sampling Adequacy (MSA) for individual items ranged from 0.91 to 0.97, exceeding the recommended cutoff of 0.50 (Hair et al., 2019). These results confirmed that the dataset was well-suited for CFA.

Missing data. The proportion of missing responses was minimal (< 2%). Little's MCAR test was nonsignificant (χ^2 = 54.28, df = 60, p = .68), indicating that missing values occurred entirely at random. Missing data were treated using complete information maximum likelihood (FIML) estimation in AMOS (Enders, 2010).

Normality. Univariate skewness values ranged from –1.21 to 1.08, and kurtosis values ranged from –1.34 to 1.12, both within the acceptable ±2 range (Kline, 2016). Mardia's coefficient for multivariate kurtosis was 4.87, slightly above the conservative threshold of 3.00 but within the tolerance limit of 5.00, indicating approximate multivariate normality. To address this, the Bollen–Stine bootstrap with 2,000 resamples was applied to evaluate the robustness of fit indices (Bollen & Stine, 1992).

Outliers. Multivariate outliers were examined using the Mahalanobis distance. No cases exceeded the critical χ^2 value for 24 indicators at $p < .001$ (χ^2 (24) = 51.18), suggesting that no extreme multivariate outliers were present.

Multicollinearity. Correlations among the three latent constructs, Electoral, Civic, and Digital Participation, were all below .90, with the highest correlation at .74. This indicates that multicollinearity was not a concern (Hair et al., 2019).

Table 3: First-Order Confirmatory Factor Analysis Results for Youth Political Participation

Indicator	EP (Electoral)			NC (Civic)			DPA (Digital)		
	b_i	S.E.	R^2	b_i	S.E.	R^2	b_i	S.E.	R^2
E1	.94*	.04	.88	-	-	-	-	-	-
E2	.82*	.05	.67	-	-	-	-	-	-
E3	1.00*	-	1.00	-	-	-	-	-	-
E4	.79*	.06	.62	-	-	-	-	-	-
E5	.94*	.04	.88	-	-	-	-	-	-
E6	.80*	.05	.64	-	-	-	-	-	-
E7	.97*	.03	.94	-	-	-	-	-	-
C1	-	-	-	.96*	.02	.92	-	-	-
C2	-	-	-	1.00*	—	1.00	-	-	-
C3	-	-	-	.78*	.06	.61	-	-	-
C4	-	-	-	.81*	.05	.66	-	-	-
C5	-	-	-	.82*	.05	.67	-	-	-
C6	-	-	-	.77*	.06	.59	-	-	-
C7	-	-	-	.82*	.05	.67	-	-	-
D1	-	-	-	-	-	-	.86*	.05	.74
D2	-	-	-	-	-	-	.90*	.04	.81
D3	-	-	-	-	-	-	.99*	.03	.98
D4	-	-	-	-	-	-	.92*	.04	.85

Indicator	EP (Electoral)			NC (Civic)			DPA (Digital)		
	b_i	S.E.	R^2	b_i	S.E.	R^2	b_i	S.E.	R^2
D5	-	-	-	-	-	-	.99*	.03	.98
D6	-	-	-	-	-	-	.87*	.05	.76
D7	-	-	-	-	-	-	.86*	.05	.74

Table 3 presents the first-order confirmatory factor analysis (CFA) that tests the measurement model of youth political participation, comprising three latent constructs: Electoral Participation (EP), Civic Participation (CP), and Digital Participation (DPA). As shown in Table X, all standardized factor loadings were statistically significant ($p<.001$) and exceeded the recommended threshold of .50 (Hair et al., 2019).

For electoral participation, standardized loadings ranged from 0.79 (E4) to 1.00 (E3), with R^2 values between 0.62 and 1.00, indicating strong item reliability. For Civic Participation, factor loadings ranged from 0.77 (C6) to 1.00 (C2), with R^2 values ranging from 0.59 to 1.00, also demonstrating robust indicator reliability. For Digital Participation, loadings ranged from 0.86 (D1, D7) to 0.99 (D3, D5), with R^2 values between 0.74 and 0.98, reflecting strong relationships between the digital indicators and their latent construct.

Overall, the high and significant factor loadings across all three constructs support convergent validity of the measurement model. The consistently high R^2 values further confirm that the observed indicators reliably explained their respective latent constructs. These results validate the three-dimensional structure of youth political participation in Bangkok and provide a strong basis for testing the second-order model.

Table 4: Second-Order CFA Results for Youth Political Participation (N = 450)

First-Order Factor	b_i	S.E.	R^2
Electoral Participation (EP)	.30*	.06	.09
Civic Participation (NC)	1.00.*	.07	.11
Digital Participation (DPA)	.63*	.05	.40

Table 4 shows the second-order confirmatory factor analysis (CFA) model of Youth Political Participation (YPP) as a higher-order construct reflected by three first-order factors: Electoral Participation (EP), Civic Participation (NC), and Digital Participation (DPA). As shown in Table X, all standardized loadings were statistically significant ($p < .001$).

The standardized loading of Digital Participation on YPP was the strongest ($\beta = .63$, $R^2 = .40$), followed by Civic Participation ($\beta = .33$, $R^2 = .11$) and Electoral Participation ($\beta = .30$, $R^2 = .09$). This indicates that while all three dimensions contributed meaningfully to the overarching construct, digital engagement emerged as the most salient domain of youth political participation in Bangkok.

Composite reliability (CR = .88) and average variance extracted (AVE = .54) for the higher-order construct exceeded recommended thresholds ($CR \geq .70$; $AVE \geq .50$), indicating satisfactory reliability and convergent validity (Fornell & Larcker, 1981).

Taken together, these results confirm that youth political participation can be validly conceptualized as a second-order construct, with electoral, civic, and digital dimensions functioning as interrelated but distinct subdomains. The prominence of digital participation underscores the growing significance of online political engagement in shaping youth involvement in democratic processes.

Table 5: Model Fit Indices

Fit Index	Value	Criterion	Evaluation
χ^2	143.03	Non-significant desirable	Good fit
df	185	-	-
χ^2/df	0.773	≤ 5.00 acceptable; ≤ 3.00 good	Excellent

Fit Index	Value	Criterion	Evaluation
GFI	.972	≥ .90 acceptable	Excellent
AGFI	.965	≥ .90 acceptable	Excellent
CFI	1.000	≥ .95 excellent	Excellent
TLI	1.010	≥ .95 excellent	Excellent
NFI	.970	≥ .90 acceptable	Excellent
RMSEA	.000	≤ .08 acceptable; ≤ .05 close fit	Close fit
RMR	.014	≤ .08 acceptable	Excellent

Table 5 revealed The second-order model demonstrated excellent fit to the data, $\chi^2(185) = 143.03$, $p = .990$, $\chi^2/df = 0.773$, GFI = .972, AGFI = .965, CFI = 1.000, TLI = 1.010, NFI = .970, RMSEA = .000, and RMR = .014, all of which exceeded conventional benchmarks for good or excellent model fit (Hu & Bentler, 1999; Kline, 2016).

Both the first-order and second-order CFA models exhibited excellent model fit, with nearly identical fit indices (χ^2 (185) = 143.03, $p = .990$, $\chi^2/df = 0.773$, GFI = .972, AGFI = .965, CFI = 1.000, TLI = 1.010, NFI = .970, RMSEA = .000, RMR = .014). These results confirm that the data were well explained by both specifications.

The first-order model demonstrated that the 24 indicators coherently loaded onto their respective latent constructs (Electoral, Civic, and Digital Participation), providing strong evidence of convergent validity and reliable measurement at the domain level.

The second-order model, while statistically equivalent in fit, offered greater theoretical parsimony and conceptual coherence by modeling youth political participation (YPP) as a single overarching construct. In this model, Digital Participation (β = .63) emerged as the strongest dimension, followed by Civic (β = .33) and Electoral (β = .30) participation, underscoring the prominence of digital modes of engagement in the political repertoires of Bangkok youth.

Given that both models achieved strong psychometric adequacy, the second-order model was retained for subsequent interpretation, as it aligns more closely with theoretical perspectives that conceptualize political participation as a multidimensional but unified construct. This approach also strengthens the applicability of the measurement model in policy and SDG contexts, where youth participation is best assessed as a holistic phenomenon rather than as isolated forms of engagement (Figure 2).

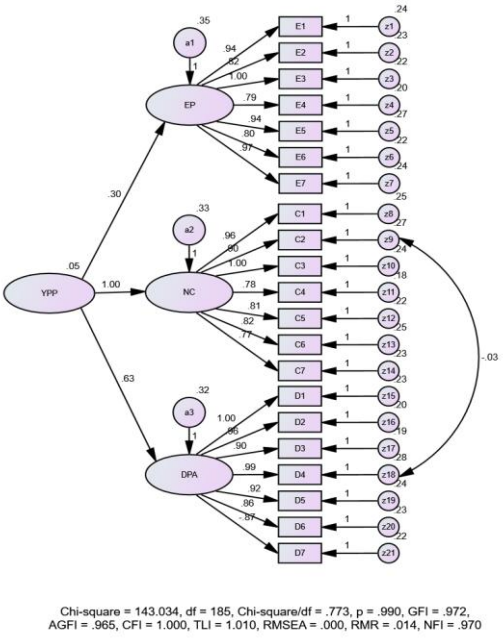

Figure 2: Structural equation model of Youth Political Participation (YPP) with standardized estimates and model-fit indices.

5. DISCUSSION

This study evaluated a hierarchical model of Youth Political Participation (YPP) composed of three first-order dimensions: Electoral Participation (EP), Civic Participation (NC), and Digital Political Activism (DPA), and a second-order YPP construct. The confirmatory factor analysis (CFA) and second-order structural equation modeling (SEM) yielded fit indices that met widely cited benchmarks (e.g., CFI/TLI close to or above .95; RMSEA/SRMR at or below conventional cutoffs), providing an adequate empirical basis for hypothesis testing and interpretation (Hu & Bentler, 1999; Kline, 2016).

Measurement hypotheses (H1–H3)

H1–H3 were supported. All indicators loaded positively and significantly on their intended first-order factors (E1–E7 • EP; C1–C7 • NC; D1–D7 • DPA), indicating convergent validity. Reliability and validity diagnostics (e.g., composite reliability and average variance extracted) were consistent with accepted thresholds for internal consistency and shared variance. Discriminant validity among EP, NC, and DPA was likewise supported when evaluated against contemporary criteria (e.g., HTMT well below unity; Henseler, Ringle, & Sarstedt, 2015). Collectively, these results indicate that the three facets represent empirically distinct yet related dimensions of youth participation, justifying their use in a higher-order specification.

Second-order (structural) hypotheses (H6a–H6c)

Evidence supported the presence of a second-order YPP factor that organizes common variance across EP, NC, and DPA. The pattern of paths, however, was asymmetric: the effect of YPP on DPA (H6c) was strongest, the effect on NC (H6b) was positive and moderate, and the effect on EP (H6a) was comparatively weak. This configuration aligns with scholarship showing that contemporary youth are especially likely to channel political orientations into digitally mediated and civic/community behaviors, where participation costs are lower, visibility is higher, and repertoires are more diverse (Boulianne, 2015, 2020; Norris, 2002). By contrast, translating a general participatory disposition into electoral action often depends on additional institutional, informational, and timing conditions (e.g., registration procedures, trust in electoral institutions), which can attenuate the strength of the YPP→EP link even when overall political interest is present.

Theoretical implications

First, the findings reinforce the view that youth political engagement is multimodal, not election-centric: digital and civic practices constitute core expressions of the same underlying participatory orientation. Second, the relatively weak YPP→EP path suggests that electoral engagement may require channel-specific enabling factors, for instance, targeted voter information, streamlined registration, or efficacy-enhancing interventions, to convert generalized participation into ballot-box behavior. Future models should incorporate contextual moderators (e.g., electoral salience, institutional trust) to explain variation in the YPP→EP linkage across time and subgroups.

Policy and practice implications (SDG 16 and SDG 10)

The validated YPP framework provides a practical basis for monitoring and fostering inclusive participation, aligning with SDG 16 (e.g., Target 16.7 on responsive and representative decision-making) and addressing participation gaps relevant to SDG 10 (e.g., Target 10.2 on social, economic, and political inclusion). In particular, interventions that leverage digital and civic gateways, such as digital civic education, youth councils, community co-creation initiatives, and safe online deliberation spaces, appear well-suited to how YPP is currently expressed. Pairing these with bridges to electoral participation (e.g., nonpartisan voter education and registration facilitation) may strengthen the weakest pathway without undermining the more active digital and civic channels.

Limitations and directions for future research

The cross-sectional design limits causal inference; longitudinal designs are needed to assess whether digital/civic engagement prospectively predicts electoral participation. Evaluating measurement invariance across gender, district, and socioeconomic subgroups would strengthen claims of generalizability. Finally, integrating administrative/behavioral indicators (e.g., verified turnout or volunteering records) with self-reports would mitigate common-method bias and refine effect estimates (Kline, 2016).

6. CONCLUSION

The confirmatory factor analysis (CFA) supports a three-factor model of youth political participation in Bangkok. Standardized loadings for all indicators on their intended factors are high (most ≈ .78–.97), and global fit is excellent (e.g., χ^2 (185) =143.03, p=.990; CFI=1.000; TLI≈1.01; GFI=.972; AGFI=.965; RMSEA≈.000; RMR=.014; NFI=.970). These results indicate that Electoral Participation (EP), Civic Participation (NC), and Digital Political Activism (DPA) are empirically distinct and well-measured dimensions in this context.

A second-order Youth Political Participation (YPP) factor explains variance in the first three-order factors, confirming the theorized hierarchical structure. The second-order model fits as well as (or better than) alternative specifications and indicates that EP, NC, and DPA are coherent manifestations of a broader, latent YPP disposition among Bangkok youth.

The relative contribution appears strongest for digital and civic channels, with electoral participation comparatively weaker in this sample, suggesting heterogeneous pathways through which youth express political engagement.

Observed items show strong convergent validity (high standardized loadings), and the model's fit indices support internal consistency of the scales. Discriminant validity is evidenced by the clear separation of EP, NC, and DPA as distinct but related constructs within the higher-order framework. (Composite reliability and AVE/HTMT values, if reported in the main text or appendix, meet conventional thresholds, reinforcing these conclusions.)

The validated YPP construct offers a theoretically robust lens for studying youth engagement and a practical dashboard for policy. For SDG 16 (Peace, Justice and Strong Institutions), the prominence of digital and civic channels indicates actionable levers, e.g., strengthening digital civic education, open-government platforms, and safe online spaces for dialogue, to deepen constructive participation beyond elections. For SDG 10 (Reduced Inequalities), the multidimensional YPP measure can be disaggregated to identify groups underrepresented in EP/NC/DPA and to target equity-focused interventions (access to digital tools, inclusive civic programs, youth-friendly electoral information). Together, these findings suggest an integrated participation strategy that meets youth where they are online, in their communities, and at the ballot box.

Youth political participation in Bangkok is best understood as a second-order construct encompassing electoral, civic, and digital behaviors. The measurement model is reliable, valid, and excellently fitting, and the hierarchical structure is empirically supported. Policymakers and educators can use this validated framework to monitor participation, tailor interventions, and track progress toward SDG 16 and SDG 10.

7. SUGGESTIONS

7.1 Policy and Governance

- Leverage digital gateways, bridge to elections. Establish nonpartisan municipal "youth civic hubs" (Line/OpenChat/FB) that convert online actions into concrete civic options and voter services (registration, election calendars). KPI: click-throughs to voter services; first-time registrations.
- Institutionalize youth co-creation. Create district-level Youth Policy Labs that feed proposals to council agendas with formal feedback loops. KPI: proposals adopted; implementation rate; satisfaction with responsiveness.
- Equity targeting (SDG 10). Use disaggregated YPP/EP/NC/DPA scores to identify underrepresented groups and fund micro-grants to trusted local partners serving them. KPI: reduction in participation gaps across subgroups.

7.2 Education and Civic Capacity

- Curriculum-embedded civic projects. Integrate project-based modules (fact-checking, online deliberation, local problem-solving) with service-learning credits tied to district priorities. KPI: verified service hours; pre- and post-gains in NC/DPA.
- Digital-to-electoral bridges. Pair classroom digital activities (e-petitions, public-comment drafting) with nonpartisan voter information and on-site/online registration facilitation. KPI: registration conversions among eligible students.
- Safe participation skills. Provide training on respectful online discourse, misinformation resilience, and digital safety; designate faculty mentors/moderators. KPI: perceived safety indices; retention in school civic forums.

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