

A development model of effective educational administration in the 21st-century schools under the Salesian Foundation of Thailand

Kriengsak Chaiphornkaew¹, Jitiyaporn Chaowarakul², Atikhun Sintanapanya³, Boonyanuch Viphoouparakhot⁴

Saint John's University¹, Rajamangala University of Technology Tawan-Ok: Chakrabongse Bhuvanarth Campus², Department of Education, Bangkok Metropolitan Administration³, Chief Transformation and Strategic Office, Chulalongkorn University⁴

E-mail: jkriengsak@saengthong.ac.th¹ E-mail: jitiyaporn.cha@gmail.com²

E-mail: max2811@gmail.com³ E-mail: Boonyanuch.vip@gmail.com⁴

Received: December 30, 2025; Revised: May 18, 2026; Accepted: June 11, 2026

ABSTRACT

This study identified the components of effective educational administration in the 21st-century schools under the Salesian Foundation of Thailand, validated the proposed model with empirical data, and developed implementation guidelines. The model comprised four interrelated components: personnel administration, organizational leadership, academic management, and learner quality development. Using a descriptive research design, data were collected from 400 administrators and teachers selected through stratified proportional random sampling from 1,257 personnel in seven Salesian schools. Data were analyzed using descriptive statistics, Pearson's correlation, and confirmatory factor analysis (CFA). The results showed that all 60 indicators received high ratings with low variability. The first-order CFA models showed good fit ($\chi^2/df = 1.22-1.33$, CFI = .996–1.000, TLI = .995–1.004, RMSEA = .023–.029), and the second-order model demonstrated excellent fit ($\chi^2(34) = 44.88$, $\chi^2/df = 1.32$, GFI = .98, AGFI = .96, CFI = .998, TLI = .997, RMSEA = .028, RMR = .003). Strong positive correlations were found among the four components ($r = .94-.99$), with learner quality development contributing most strongly to the model. The study provides an empirically validated, context-specific model that can guide policy development, school improvement, and future research in Salesian and other faith-based educational settings.

KEYWORDS: Effective Educational Administration, Salesian Foundation of Thailand.

Introduction

Education is a key mechanism for developing human resources, which form the foundation of sustainable social and economic progress. In the 21st-century, rapid digitalization and technological change are transforming how people live, work, and learn, forcing education systems to adapt to a

far more dynamic and uncertain environment (Hargreaves & Fullan, 2012; Panich, 2012; OECD, 2019). School administration is increasingly confronted with complexity, volatility, and interdependent challenges driven by digital and AI transformation, demographic shifts, economic restructuring, labor market disruption, climate change, and

evolving social and cultural expectations (OECD, 2019).

Contemporary evidence suggests that traditional schooling has struggled to keep pace with the demands of learners and societies when compared with the speed of technological and labor market change (Schleicher, 2018). The World Economic Forum (2020) estimates that by 2025, many existing jobs will be replaced by automation and AI, while emerging roles will require a very different mix of skills. The digital revolution not only reshapes economies but penetrates the very foundations of learning (Brynjolfsson & McAfee, 2014), pushing educational leaders to move from managing routine operations toward leading change and redesigning learning systems for complex contexts (Hargreaves & Fullan, 2012; OECD, 2012; Darling-Hammond et al., 2020).

Consequently, successful schools are increasingly defined as “living learning communities” that are responsive to students’ real-life contexts, rather than institutions judged solely by narrow quantitative indicators (Darling-Hammond et al., 2020).

Within this landscape, 21st-century competencies are not merely a conceptual framework but a practical necessity. Skills such as critical thinking, problem-solving, collaboration, adaptability, and self-directed learning have been conceptualized as “transversal competencies” that cut across disciplines and contexts (Griffin et al., 2011 2012; Trilling & Fadel, 2009). Effective educational administration must therefore foster learning environments that support meaningful uses of technology, promote active and inquiry-based learning, and invest in continuous teacher development aligned with contemporary realities (Sanratana, 2013). At the policy level, the National Education Plan of Thailand 2017–2036 emphasizes the development of Thai citizens as global citizens capable of adapting to change, contributing to a learning society, and enhancing the quality and efficiency of the education system (Office of the Education Council, 2017). However, persistent gaps remain between national policy intentions

and school-level implementation, underlining the need for systematic models that can translate policy into measurable, school-wide practices.

Research in Thailand has highlighted several recurring factors associated with effective schools: participatory administration, the use of information technology for management, systematic personnel development, quality assurance, and strong partnership networks (Sanratana, 2013). High-performing schools tend to exhibit strong instructional leadership, ongoing teacher professional development, high-quality curriculum and pedagogy, and active engagement of parents and communities (Panich, 2012). The Education 4.0 discourse further stresses that school management must enable learners to become innovative, creative, and adaptive problem-solvers through participatory governance and school-based innovation (OECD, 2019). At the same time, the role of teachers has shifted from knowledge transmitters to facilitators, mentors, and inspirational figures who ignite self-directed learning (Panich, 2012), while school administrators are expected to serve as change leaders who support teachers and staff in designing learning experiences that align with 21st-century demands (Hargreaves & Fullan, 2012).

For private schools under religious foundations, such as the Salesian Foundation of Thailand, educational administration must simultaneously uphold ethical and religious identity while responding to global change (OECD, 2019). Salesian schools aim to promote young people as morally grounded and professionally competent citizens according to the charism of Saint John Bosco, with particular attention to disadvantaged youth, high-quality vocational education, and the integration of moral and academic formation (Office for National Education Standards and Quality Assessment [ONESQA], 2019). In practice, Salesian schools typically emphasize caring teacher-student relationships, respectful discipline, youth participation, and the integration of moral and life-skills education within the

broader curriculum. These elements are rooted in the Preventive System, which emphasizes reason, religion, and loving-kindness as the core of holistic youth development.

Despite these strengths, Salesian schools in Thailand face similar pressures to schools worldwide, including technological disruption, demographic changes, increasing educational competition, and shifting labor market demands (World Economic Forum, 2020). Many Salesian schools have consistently achieved good or very good ratings in external quality assurance (Office for National Education Standards and Quality Assessment, 2019), yet the challenge remains to sustain and elevate quality to international standards. This requires a context-specific administrative model that can transform Salesian values and institutional strengths into coherent and measurable management mechanisms.

Existing international models of effective school leadership and administration often derived from public or generic school systems (e.g., Hitt & Tucker, 2016; Marzano et al., 2005) provide important insights but do not fully capture the distinctive philosophy, identity, and mission of Salesian schools in Thailand. There is a noticeable lack of empirical models that articulate what “successful educational administration in the 21st-century” means within this specific context, especially in terms of integrating leadership, personnel development, academic management, organizational communication, and knowledge management into a coherent learning ecosystem (Zhao, 2012).

Despite the growing body of literature on effective school leadership and educational administration, several important gaps remain. Existing models generally emphasize instructional leadership, organizational effectiveness, quality assurance, or school improvement in mainstream educational settings (Hitt & Tucker, 2016; Marzano et al., 2005). However, these models provide limited guidance for faith-based educational

institutions that must simultaneously balance academic excellence, moral formation, organizational sustainability, and mission-driven values. In practice, administrators of Salesian schools in Thailand face the challenge of integrating the Preventive System of Saint John Bosco—reason, religion, and loving-kindness—into modern management practices while responding to rapid technological change, increasing stakeholder expectations, and demands for measurable educational outcomes. Although many Salesian schools have demonstrated strong educational performance, there remains no empirically validated model that systematically integrates Salesian identity, educational mission, leadership practices, personnel development, academic administration, and learner development into a coherent framework. This limitation highlights the need for a context-specific model that reflects both contemporary educational requirements and the distinctive ethos of Salesian education in Thailand.

In response to these gaps, the present study seeks to develop and validate a development developmental model for effective educational administration in 21st-century schools under the Salesian Foundation of Thailand. The model is intended to align with Salesian educational philosophy while addressing contemporary educational challenges in a holistic and systematic manner. By doing so, the study aims to contribute both to academic knowledge and to practical policy and leadership guidance, offering a contextually grounded framework that can guide school improvement within the Salesian network and potentially inform similar faith-based or value-driven school systems in other settings.

Purposes

1. To identify the key components that underpin effective educational administration in 21st-century schools under the Salesian Foundation of Thailand.
2. To validate the goodness of fit of the proposed developmental model of effective educational administration in 21st-

century Salesian schools against empirical data.

3. To propose practical guidelines for the development and application of this model in schools under the Salesian Foundation of Thailand.

Literature Review

1) Effective Educational Administration in the 21st Century

The rapid advancement of digital technologies, artificial intelligence, globalization, and changing workforce demands has transformed educational administration in the 21st century. Educational institutions are expected to develop learners who possess critical thinking, problem-solving, collaboration, adaptability, and lifelong learning competencies (Griffin et al., 2012; Trilling & Fadel, 2009). Consequently, school administrators must move beyond traditional management approaches and adopt leadership practices that support innovation, organizational learning, and continuous improvement (Hargreaves & Fullan, 2012; OECD, 2019). Effective educational administration is therefore increasingly viewed as a holistic and integrated process that aligns leadership, human resources, academic quality, and learner development toward sustainable educational outcomes.

2) Human Resource Management in Educational Institutions

Human resource management is recognized as a fundamental factor influencing school effectiveness. Hargreaves and Fullan (2012) proposed that professional capital, including teacher competence, collaboration, and continuous professional development, constitutes a critical resource for educational improvement. Effective schools invest in teacher learning, promote professional collaboration, and create supportive organizational cultures that encourage innovation and reflective practice. Human resource management therefore plays an important role in strengthening institutional capacity and enhancing educational quality.

3) Organizational Leadership and School Effectiveness

Leadership is widely regarded as a key determinant of school success. According to Marzano et al. (2005), effective educational leaders establish clear visions, create supportive organizational environments, and align resources with educational goals. Similarly, Hitt and Tucker (2016) emphasized that leadership practices contribute to student achievement through organizational development, instructional support, and capacity building. In rapidly changing educational contexts, school leaders are expected to function as change agents capable of guiding institutions through uncertainty while maintaining organizational effectiveness (OECD, 2012; OECD, 2019).

4) Academic Administration and Quality Learning

Academic administration focuses on the planning, implementation, monitoring, and continuous improvement of teaching and learning processes. Panich (2012) argued that educational institutions must redesign learning environments to support active learning, learner engagement, and knowledge creation. Likewise, Sanrattana (2013) emphasized that educational administration in the digital age requires effective curriculum management, instructional innovation, quality assurance systems, and the integration of technology into learning processes. Effective academic administration therefore contributes directly to educational quality and institutional performance.

5) Learner Development Quality and Salesian Educational Identity

Contemporary educational perspectives emphasize that learner development extends beyond academic achievement and includes social, emotional, moral, and personal growth (Darling-Hammond et al., 2020). Successful schools create learning environments that support holistic learner development and prepare students for the challenges of the 21st century. Within the Salesian educational tradition, learner development is guided by the Preventive System of Saint John Bosco,

which emphasizes reason, religion, and loving-kindness. Salesian schools seek to develop learners who are academically competent, morally responsible, spiritually grounded, and socially engaged. Therefore, educational administration in Salesian schools must balance organizational effectiveness with the preservation of institutional identity, values, and mission.

Based on the literature, effective educational administration in the 21st century can be conceptualized through four interrelated dimensions: human resource management, organizational leadership, academic administration, and learner development quality. These dimensions provide the conceptual foundation for the Development of Effective Administrative Success in the 21st Century (DEAS21) model proposed in this study.

Research Framework and Process

This study employed a three phases:

Phase 1: Conceptualization and Instrument Development (Qualitative Phase) A systematic review of Thai and international literature was conducted to derive the core dimensions, subcomponents, and indicators of successful 21st-century school administration, leading to a preliminary conceptual framework. A questionnaire was then constructed in line with operational definitions, its content validity reviewed by five experts, and a pilot test conducted to refine wording, structure, and scoring procedures before field use.

Phase 2: Quantitative Data Collection (Quantitative Phase) The validated questionnaire was administered to administrators and teachers in Salesian schools through a structured survey procedure under approved ethical protocols. Data screening and quality control procedures were used to ensure completeness and consistency prior to model testing.

Phase 3: Model Confirmation and Application (Model Confirmation & Application) Quantitative data were analyzed to assess the measurement quality and to confirm both first- and second-order structures of the proposed model. Post-CFA expert review was then used to refine indicators and translate the validated model into practical policy and practice guidelines that are contextually appropriate for Salesian schools in Thailand.

To summarize the overall design, the study was organized into three sequential phases (Figure 1). Phase 1 focused on conceptualization and instrument development through systematic literature review and expert validation. Phase 2 comprised quantitative data collection using a stratified sample of administrators and teachers in Salesian schools. Phase 3 involved model confirmation and application, including first- and second-order CFA, expert review, and the synthesis of policy and practice guidelines for the Salesian Foundation of Thailand.

Figure 1 - Research Framework for the Development and Validation of the DEAS21 Model

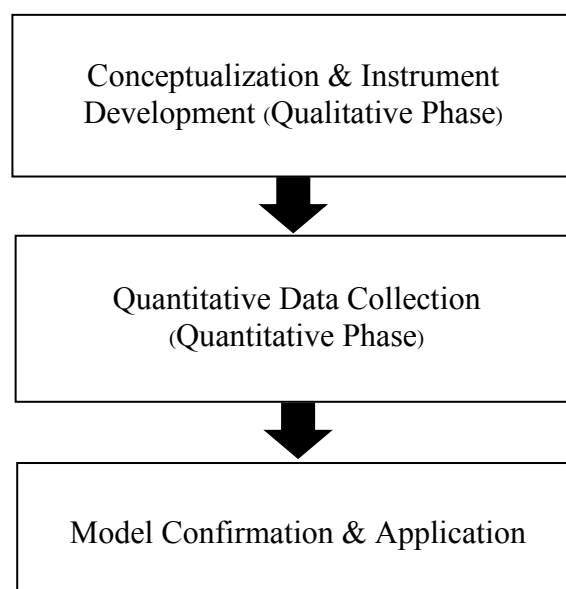


Figure 1 The research framework, showing how the qualitative conceptual work, large-scale survey, and model validation were integrated to develop the DEAS21 model for effective educational administration in the 21st-century.

Population and Sample

The population comprised all principals, school administrators, teachers, and educational personnel in seven schools under the Salesian Foundation of Thailand in the 2024 academic year ($N = 1,257$). Using stratified random sampling by school and role (administrator/ teacher), 400 respondents were selected, including 25 school administrators and 375 teachers. The sample size exceeded conventional minimum requirements for confirmatory factor analysis and was set to ensure adequate representation of each school and role, as well as to compensate for possible non-response.

Instruments

Data were collected using a structured questionnaire developed from the conceptual framework of effective 21st-century educational administration in Salesian schools. The instrument consisted of two parts:

Part 1. Demographic information: Five forced-choice items on gender, age, highest qualification, position, and years in the current position, used for descriptive analysis and sample classification.

Part 2. Perceptions of indicator appropriateness: Sixty items covering four main dimensions and twelve subcomponents of successful school administration, rated on a 5-point Likert scale ranging from 1 (least appropriate) to 5 (most appropriate). Operational definitions were specified for all constructs to ensure consistent interpretation. Items were generated from a systematic review of national and international literature and the hypothesized model, then refined through expert review. Five specialists in educational administration, research

methodology, and Salesian education evaluated content validity using the index of item-objective congruence (IOC); all items met the acceptance criterion ($\text{IOC} \geq 0.50$), with an overall IOC close to 1.00. The revised questionnaire was piloted with 34 administrators and teachers from Salesian schools not included in the main sample. Internal consistency, assessed by Cronbach's alpha, was .994 for the overall scale and ranged from .973 to .984 across the four dimensions, exceeding the conventional .70 threshold.

Data Analysis

Data were analyzed using statistical software. Descriptive statistics (frequency, percentage, mean, standard deviation, skewness, kurtosis, and coefficient of variation) were used to summarize respondents' demographic characteristics and to screen item distributions. Mean scores on the 5-point rating scale were interpreted using conventional benchmarks ($1.00-1.80 =$ very low, $1.81-2.60 =$ low, $2.61-3.40 =$ moderate, $3.41-4.20 =$ high, $4.21-5.00 =$ very high). Items with excessively high coefficients of variation or extreme skewness/kurtosis were flagged for further review. The suitability of the correlation matrices for factor analysis was examined using Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. Sampling adequacy was confirmed ($\text{KMO} = 0.855$), and Bartlett's test was significant, $\chi^2 = 2,240.546$, $p < .001$, indicating that the data were appropriate for confirmatory factor analysis.

Confirmatory factor analysis (CFA) was then employed to validate the first- and second-order measurement models. Model fit

was evaluated using conventional indices, including the relative chi-square (χ^2/df), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), comparative fit index (CFI), Tucker–Lewis index (TLI), root mean square error of approximation (RMSEA), and root mean square residual (RMR). Acceptable thresholds were defined as χ^2/df close to or below 3, RMSEA below .05, and GFI, AGFI, CFI, TLI, and NFI at or above .90. Standardized factor loadings of at least .50 (preferably $\geq .70$) and statistical significance at $p < .05$ were used as criteria for indicator retention.

Based on these criteria, all first- and second-order models demonstrated good to excellent fit to the data. For the four first-order domain models—Human Resource Management (HUREM), Organizational Leadership (ORGLE), Learner Development Quality (LDQTY), and Academic

Administration (ACADM)— χ^2/df values ranged from approximately 1.22 to 1.33, with GFI and AGFI generally close to or above .95, CFI and TLI around .99, and RMSEA values below .03. For the overall second-order DEAS21 model, the fit indices were $\chi^2(34) = 44.88$, $p = .10$, $\chi^2/df = 1.32$, GFI = .98, AGFI = .96, CFI = .998, TLI = .997, RMSEA = .028, and RMR = .003, indicating excellent model fit. The four domain-level constructs also showed excellent internal consistency and convergent validity: Cronbach’s alpha coefficients ranged from .973 to .984, composite reliabilities (CR) were all above .90, and average variance extracted (AVE) values ranged from .77 to .84, exceeding conventional benchmarks. These results confirm that the DEAS21 domains are measured reliably and that each domain factor captures a substantial proportion of variance in its subcomponents.

Figure 2: Second-order CFA model of DEAS21 for effective educational administration in Salesian schools.



Note: Development of Effective Administrative Success in the 21st-century. The higher-order factor (DEAS21) is indicated by four first-order latent variables human resource management (HUREM), organizational leadership (ORGLE), learner development quality (LDQTY), and academic administration (ACADM) each measured by three subcomponents (SKDE, VLEA, CLOB; VPLN, CBOC, RMSY; SMLD, HLDV, SLEN; SPMA, CBTQ, CLDE). Only standardized factor loadings (λ) and primary structural paths are shown; correlated error terms are omitted for clarity. Model fit: $N = 400$, $\chi^2(34) = 44.88$, $\chi^2/df = 1.32$, CFI = .998, TLI = .997, RMSEA = .028, RMR = .003, supporting the validity of the DEAS21 structure.

Table 1: Detailed standardized loadings and reliability estimate for each component

Domain and subcomponent	Std. loading (λ)	R ²
-------------------------	----------------------------	----------------

1. Human Resource Management (HUREM) ($\alpha = .973$)		
Skill Development (SKDE)	.824	.679
Visionary Leadership for Educators (VLEA)	.899	.808
Team Collaboration (CLOB)	.914	.835
2. Organizational Leadership (ORGLE) ($\alpha = .983$)		
Vision Planning (VPLN)	.884	.781
Capacity Building & Organizational Culture (CBOC)	.900	.810
Resource Management for Sustainability (RMSY)	.914	.835
3. Learner Development Quality (LDQTY) ($\alpha = .978$)		
Strategic Management for Learner Development (SMLD)	.919	.845
Holistic Learner Development (HLDV)	.886	.785
Supportive Learning Environment (SLEN)	.933	.870
4. Academic Administration (ACADM) ($\alpha = .984$)		
Strategic Planning & Management (SPMA)	.927	.859
Capacity Building & Teaching Quality (CBTQ)	.919	.845
Comprehensive Learner Development (CLDE)	.903	.815

Note. All factor loadings are standardized and significant at $p < .01$. Cronbach's alpha (α) values are reported at the domain level. R^2 indicates the proportion of variance in each subcomponent explained by its corresponding domain factor. At the second-order level, DEAS21 loaded strongly on all four domain factors ($\lambda = .93$ for HUREM, .97 for ORGLE, 1.01 for LDQTY, and .97 for ACADM; all $p < .01$).

The standardized loadings and reliability estimate for the four first-order domains and their twelve subcomponents are presented in Table 1. All factor loadings were positive, statistically significant at $p < .01$, and fell within an acceptable-to-strong range (approximately .82–.93 at the subcomponent level), with R^2 values indicating that each domain factor explained a substantial proportion of variance in its respective subcomponents. Cronbach's alpha coefficients at the domain level ranged from .973 to .984, indicating excellent internal consistency for Human Resource Management (HUREM), Organizational Leadership (ORGLE), Learner Development Quality (LDQTY), and Academic Administration (ACADM). At the second-order level, DEAS21 loaded strongly on all four domain factors ($\lambda = .93$ for HUREM, .97 for ORGLE, 1.01 for LDQTY, and .97 for ACADM; all $p < .01$), supporting the specification of a robust higher-order construct representing overall administrative success.

Model fit indices for the first- and second-order CFA models are summarized in

Table 2. All models demonstrated good to excellent fit to the data. For the four first-order domain models (HUREM, ORGLE, LDQTY, and ACADM), χ^2/df values ranged from approximately 1.22 to 1.33, with goodness-of-fit indices (GFI and AGFI) generally close to or above .95, comparative fit indices (CFI and TLI) around .99, and RMSEA values below .03. For the overall second-order DEAS21 model, the fit indices were $\chi^2(34) = 44.88$, $p = .10$, $\chi^2/df = 1.32$, GFI = .98, AGFI = .96, CFI = .998, TLI = .997, RMSEA = .028, and RMR = .003, indicating excellent model fit and supporting the internal coherence of the higher-order structure.

The four domain-level constructs also demonstrated excellent convergent validity (see Table 3). Cronbach's alpha coefficients ranged from .973 to .984 across HUREM, ORGLE, LDQTY, and ACADM, all well above the conventional .70 benchmark. Composite reliabilities (CR) were similarly high, exceeding .90 for all domains (HUREM = .886, ORGLE = .893, LDQTY = .926, ACADM = .924), indicating stable and internally coherent constructs.

The average variance extracted (AVE) values ranged from .77 to .84, surpassing the .50 criterion and confirming that each domain factor captured a substantial proportion of variance in its subcomponents. Taken together, these results support the convergent validity of the DEAS21 measurement model at the domain level.

Discriminant validity among the four domains was examined using the Fornell–Larcker criterion (Table 4). Diagonal elements represent the square roots of AVE

for each domain (approximately .88–.92), while off-diagonal elements are the latent correlations among the domains. Although all AVE values exceeded the .50 benchmark, the latent correlations (.94–.99) were higher than the square roots of their respective AVEs. This pattern suggests substantial conceptual overlap among HUREM, ORGLE, LDQTY, and ACADM, which is theoretically consistent with the specification of a strong second-order factor (DEAS21) representing overall administrative success.

Table 2: Overall model fit indices for first- and second-order CFA

Model	χ^2	df	χ^2/df	p	GFI	AGFI	CFI	TLI	NFI	RMSEA	RMR
HUREM	87.694	72	1.218	.101	.972	.953	.996	.995	.980	.023	.010
ORGLE	88.355	71	1.244	.080	.971	.952	.997	.995	.984	.025	.008
LDQTY	73.270	55	1.332	.050	.977	.950	.996	.993	.986	.029	.008
ACADM	53.702	67	0.802	.880	.982	.967	1.000	1.004	.990	.000	.006
DEAS21	44.882	34	1.320	.100	.982	.958	.998	.997	.993	.028	.003

Note. Ellipses indicate values to be taken directly from the corresponding AMOS output for the ORGLE and ACADM models. All models show acceptable to excellent fit, with χ^2/df close to or below 3, CFI/TLI around .99, and RMSEA below .05.

The limitation in discriminant validity at the domain level is therefore acknowledged, while the evidence still supports the use of DEAS21 as a higher-

order construct for modeling effective 21st-century educational administration in Salesian schools.

Table 3: Composite reliability (CR) and average variance extracted (AVE) for the four DEAS21 domains

Domain	α	CR	AVE
HUREM	.973	.886	.774
ORGLE	.983	.893	.809
LDQTY	.978	.926	.833
ACADM	.984	.924	.840

Note. CR and AVE values are derived from standardized factor loadings of the three subcomponents for each domain.

Table 4: Fornell–Larcker matrix for the four DEAS21 domains

domain	hurem	orgle	ldqty	acadm
HUREM	.880	.951	.974	.940
ORGLE	.951	.899	.990	.955
LDQTY	.974	.990	.913	.979
ACADM	.940	.955	.979	.917

Note. Diagonal elements are the square roots of AVE for each domain (approximate), and off-diagonal elements are latent correlations among the domains. The pattern shows that latent correlations (.94–.99) exceed the square roots of AVE (.88–.92), indicating substantial

overlap among the domains and supporting the presence of a strong second-order factor (DEAS21).

Although the four domains showed strong convergent validity, the very high latent correlations indicate limited discriminant validity at the domain level. In practice, this suggests that school personnel may perceive human resource management, organizational leadership, academic administration, and learner development quality as highly intertwined aspects of a single, overarching process of administrative success, which is consistent with the specification of DEAS21 as a strong second-order construct.

Conclusion and Discussion

Conclusion

This study developed and validated the DEAS21 model for effective 21st-century educational administration. The conclusions are aligned with the three research objectives as follows:

1. Identification of core components: Drawing on a systematic review of national and international literature, DEAS21 was conceptualized around four interrelated dimensions: Human Resource Management (HUREM) , Organizational Leadership (ORGLE) , Learner Development Quality (LDQTY) , and Academic Administration (ACADM) , further specified into twelve subcomponents and sixty indicators. Empirical screening showed that all indicators received high mean ratings (approximately 4.31– 4.43 on a 5- point scale) with low coefficients of variation, indicating strong and consistent professional endorsement. LDQTY emerged as the most salient domain, underscoring that holistic learner development and supportive learning environments are regarded as the primary markers of administrative success, with HUREM, ORGLE, and ACADM functioning as critical enabling systems.

2. Empirical validation of the DEAS21 model: First- and second- order confirmatory factor analyses yielded acceptable to excellent fit for both the twelve subscales and the higher- order DEAS21

construct. Standardized factor loadings for all indicators were positive, statistically significant, and fell within an acceptable-to-strong range (approximately .69–.92). Global fit indices reached high levels (for example, CFI close to .99 and RMSEA around .03), confirming the internal coherence of the measurement structure. At the second-order level, the overarching construct of “ 21st-century administrative success” was robustly represented by the four dimensions, with LDQTY showing the greatest relative weight, followed by ORGLE, ACADM, and HUREM. Taken together, these results indicate that DEAS21 is both theoretically well- founded and empirically stable in the school context.

3. Guidelines for development and application: The validated DEAS21 model provides an evidence- based framework for both policy and practice. At the system level, it offers a structured set of dimensions and indicators to support strategic planning, quality assurance, and monitoring within the Salesian network. At the school level, it enables leaders to align human resource management, organizational leadership, academic administration, and learner- focused practices around explicit learner-development goals, fostering an integrated rather than fragmented approach to school improvement. In this sense, DEAS21 functions simultaneously as a measurement framework and a strategic compass, with potential applicability to other faith-based or mission-driven school systems facing similar 21st-century challenges.

Discussion

The findings confirm that effective educational administration in 21st- century schools under the Salesian Foundation of Thailand is a multidimensional construct consisting of human resource management, organizational leadership, academic administration, and learner development quality. The strong factor loadings and

excellent fit indices support the proposition that these dimensions operate as an integrated system rather than as isolated administrative functions. This finding is consistent with Hitt and Tucker (2016), who argued that effective school leadership requires interconnected practices that simultaneously support teaching, learning, organizational capacity, and school improvement. Similarly, Marzano et al. (2005) emphasized that successful schools are characterized by leadership systems that align organizational processes with educational goals.

Among the four dimensions, learner development quality emerged as the most influential component of the DEAS21 model. This finding reflects contemporary educational perspectives that place student learning and holistic development at the center of school effectiveness. The result is consistent with Darling-Hammond et al. (2020), who emphasized that educational systems should focus on supporting learners' cognitive, social, emotional, and developmental needs. It also aligns with Griffin et al. (2012) and Trilling and Fadel (2009), who highlighted the importance of developing 21st-century competencies, including critical thinking, collaboration, adaptability, and lifelong learning. The prominence of learner development suggests that educational success is increasingly evaluated through the extent to which schools prepare students for complex and rapidly changing social environments.

The strong contribution of organizational leadership supports previous studies emphasizing the role of leadership in guiding educational change. Hargreaves and Fullan (2012) argued that educational leaders must move beyond administrative control and become agents of professional capital development, collaboration, and continuous improvement. Likewise, OECD (2012, 2019) highlighted the importance of visionary leadership in navigating uncertainty, technological transformation, and changing educational demands. The present findings suggest that organizational leadership serves as a critical mechanism for translating

institutional vision into effective school practices and sustainable development.

Human resource management also demonstrated a substantial contribution to the overall model. This finding supports the argument of Hargreaves and Fullan (2012) that educational quality depends largely on the professional capacity of teachers and staff. Effective schools require continuous professional development, collaborative learning cultures, and systems that support teacher growth. The strong loading of this dimension indicates that investments in personnel development remain essential for achieving long-term educational effectiveness in contemporary school settings.

Academic administration was another significant component of the model. This finding is consistent with Sanrattana (2013) and Panich (2012), who emphasized that educational administration in the digital age must support curriculum quality, instructional innovation, quality assurance, and effective learning management. In the context of Education 4.0 and rapid technological advancement, academic administration functions as an important mechanism for ensuring that educational practices remain relevant to changing learner's needs and societal expectations.

An important contribution of this study lies in its integration of these four dimensions into a higher-order construct represented by the DEAS21 model. Although previous studies have examined leadership, school effectiveness, personnel management, and learning quality separately, the present findings demonstrate that these dimensions are highly interconnected and collectively represent effective educational administration. The very high correlations among the four domains support the theoretical proposition that successful school administration requires a systemic and integrated approach rather than fragmented management practices. This finding is also consistent with Zhao (2012), who argued that schools must function as adaptive learning ecosystems capable of responding to complex educational challenges.

The findings further highlight the importance of Salesian educational identity in shaping effective educational administration. Unlike many existing models developed for general educational settings, the DEAS21 model reflects the distinctive philosophy and mission of Salesian education. Salesian schools are expected not only to achieve academic excellence but also to promote moral development, spiritual formation, social responsibility, and holistic learner growth. Rooted in the Preventive System of Saint John Bosco, which emphasizes reason, religion, and loving-kindness, educational administration in Salesian schools requires balancing organizational effectiveness with mission-centered values. Therefore, the DEAS21 model extends existing leadership and school effectiveness frameworks by incorporating the specific ethos, identity, and educational mission of the Salesian Foundation of Thailand.

The study therefore contributes both theoretically and practically. Theoretically, it provides empirical evidence supporting a multidimensional and integrated model of educational administration in the 21st century. Practically, it offers school leaders and policymakers a contextually grounded framework that can guide strategic planning, personnel development, academic improvement, and learner-centered educational practices within Salesian schools and other value-based educational institutions.

Recommendation

Recommendations for Policy and Practice

References

- Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W. W. Norton.
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2), 97–140.
- Griffin, P., McGaw, B., & Care, E. (Eds.). (2012). *Assessment and teaching of 21st century skills*. Springer.
- Hargreaves, A., & Fullan, M. (2012). *Professional capital: Transforming teaching in every school*. Teachers College Press.

1) School Level. Schools should adopt the DEAS21 model as a framework for self-assessment and continuous improvement. Particular attention should be given to learner development quality, which emerged as the most influential component of effective educational administration.

2) Supervisory Level. Educational supervisors and school networks should utilize the DEAS21 dimensions and indicators as a common framework for monitoring, supporting, and enhancing school performance across institutions.

3) Policy Level. The Salesian Foundation of Thailand should integrate the DEAS21 model into strategic planning, quality assurance, and performance evaluation systems to promote consistency and effectiveness throughout the educational network.

4) Salesian Educational Identity Level. Schools should apply the DEAS21 model in ways that strengthen the distinctive Salesian educational mission by balancing academic excellence, learner development, moral formation, and organizational effectiveness.

Recommendations for Future Research

1) Future studies should examine the implementation of the DEAS21 model in practice and evaluate its impact on school effectiveness, educational quality, and learner outcomes.

2) Future research should validate and extend the DEAS21 model in other educational contexts, including faith-based, private, and public schools, to assess its generalizability and applicability.

- Hitt, D. H., & Tucker, P. D. (2016). Systematic review of key leadership practices found to influence student achievement. *Review of Educational Research*, 86(2), 531–569.
- Marzano, R. J., Waters, T., & McNulty, B. A. (2005). *School leadership that works: From research to results*. ASCD.
- OECD. (2012). *Preparing teachers and developing school leaders for the 21st century*. OECD Publishing.
- OECD. (2019). *OECD future of education and skills 2030: OECD learning compass 2030*. OECD Publishing.
- Office for National Education Standards and Quality Assessment. (2019). *External quality assessment report of private schools*. Author.
- Office of the Education Council. (2017). *National education plan 2017–2036*. Author. [In Thai]
- Panich, V. (2012). *The way of learning for the 21st century*. Tathata Publication. [In Thai]
- Sanrattana, V. (2013). *Educational management in the digital age*. Chulalongkorn University Press.
- Schleicher, A. (2018). *World class: How to build a 21st-century school system*. OECD Publishing.
- Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*. Jossey-Bass.
- World Economic Forum. (2020). *The future of jobs report 2020*. World Economic Forum.
- Zhao, Y. (2012). *World class learners: Educating creative and entrepreneurial students*. Corwin.