Developing and Validating the Integrative Model of Excellent Students (IMUN) for Holistic Student Outcomes in Malaysian Secondary Schools

Rosmawati Yusof @ Othman, Zuraidah Juliana Mohamad Yusoff

Universiti Sultan Zainal Abidin, Malaysia

ABSTRACT

Holistic student development is a central aspiration of the Malaysian education system, yet school responses to discipline and character formation often remain programme-based, fragmented, and weakly connected to an explicit developmental architecture. This study developed and evaluated the Integrative Model of Excellent Students (IMUN), a values-based framework intended to guide the formation of holistic student outcomes in Malaysian national secondary schools. Design and Development Research, operationalised through an ADDIE-informed three-phase sequence, was employed. Phase I combined surveys of 350 students and 350 teachers with open-ended responses from 10 Senior Assistants for Student Affairs to establish need and contextual requirements. Phase II integrated the Malaysian National Education Philosophy, Flexible Education with Soul (FlexS), and the Insight-Manifestation-Shaping (IMS) framework, before submitting the proposed structure to 13 experts through the Fuzzy Delphi Method. Phase III evaluated implementation suitability, scalability, application potential, and feasibility using the same expert-consensus procedure. The validated model comprises four domains (True Belief, Sound Thinking, Noble Character, and Professional Work Culture), eight dimensions, eight model elements, and three developmental stages (deep awareness, enactment, and self-formation). Expert consensus was high for alignment with the National Education Philosophy (92%), FlexS (85%), IMS (85%), and the domain-dimension-element relationships (82%). Implementation suitability, scalability, application potential, and overall feasibility achieved consensus levels of 92%, 98%, 87%, and 80%, respectively. Two feasibility assumptions, low implementation cost and implementation without intensive training, did not meet the 75% item-level criterion, indicating that resource planning and structured professional learning are prerequisites rather than optional supports. IMUN contributes a culturally grounded, expert-validated conceptual architecture that connects spiritual orientation, reasoning, character, competence, leadership, and social contribution through an explicit developmental sequence. The findings establish expert-based evidence of content alignment, structural coherence, preliminary usability, and perceived feasibility; they do not establish that IMUN causes improvements in student behaviour or holistic outcomes.

Keywords: holistic student development; character education; student affairs

INTRODUCTION

Educational systems are increasingly expected to cultivate more than academic attainment. Learners must develop ethical judgement, emotional and physical well-being, a coherent sense of responsibility, the capacity to work with others, and a disposition to contribute to society (OECD, 2021). This broader purpose is not an ancillary aspiration in Malaysia. The National Education Philosophy defines education as a continuous effort to develop individual potential in an integrated manner and to produce persons who are intellectually, spiritually, emotionally, and physically balanced, grounded in belief in and obedience to God. The Malaysia Education Blueprint 2013-2025 similarly positioned student outcomes within a system-wide transformation agenda rather than treating them as the consequence of examination performance alone (MOE, 2013).

The policy ideal, however, creates a demanding implementation problem. Values, discipline, student welfare, leadership, co-curricular participation, counselling, and classroom learning are often administered through different units, activities, and reporting instruments. When these initiatives are not connected by an explicit developmental logic, schools may run many worthwhile programmes without being able to explain how awareness becomes sustained conduct or how individual conduct matures into responsible social contribution.

This is a problem of coherence rather than simply a shortage of activities. International scholarship likewise describes holistic development as the deliberate integration of intellectual, physical, emotional, social, moral, and, where culturally appropriate, spiritual dimensions (Kuh et al., 2017; Miseliunaite et al., 2022).

Character education faces a related difficulty. Lists of desirable values are necessary but insufficient. Effective formation requires consistency across curriculum, relationships, institutional culture, adult modelling, opportunities for practice, and reflection (Berkowitz & Bier, 2005; Lickona, 1991). A student may recognise a value linguistically yet fail to enact it under social pressure; conversely, compliance produced by surveillance may disappear when external control is removed. A useful model must therefore distinguish knowing, valuing, practising, and internalising while recognising that these processes interact within the school ecology (Bronfenbrenner, 1979).

Problem statement and study purpose

The thesis from which this article is derived documented continuing disciplinary concerns despite multiple school strategies, uneven use of guiding models, and the need for a structure that could connect the National Education Philosophy to implementable domains and developmental stages. The study consequently sought to develop and validate IMUN as an integrative framework for holistic student outcomes. This article reports the model-development logic, the expert-validation evidence, and the implementation conditions emerging from the evaluation. It asks: (1) What conceptual structure can integrate national philosophical aims with a staged model of student formation? (2) To what extent do experts agree on the alignment, internal relationships, structure, and usability of that model? and (3) What implementation cautions follow from the evidence?

CONCEPTUAL FOUNDATIONS

Holistic outcomes as integrated human development

Holistic education rejects the reduction of learning to isolated academic variables. Its central proposition is that cognitive, affective, embodied, relational, ethical, and existential dimensions of development are mutually conditioning. A systematic review by Miseliunaite et al. (2022) found that holistic education is expressed through multiple traditions but commonly emphasises connectedness, learner wholeness, meaningful experience, and the relationship between personal and social transformation. UNESCO (2021) similarly argues for a new social contract for education in which knowledge, cooperation, care, and responsibility are developed together. These perspectives support integration but do not, by themselves, specify a culturally grounded architecture for Malaysian secondary schools.

The National Education Philosophy supplies that normative anchor. Its language of balanced and harmonious development joins intellect, spirituality, emotion, and physicality with knowledge, competence, morality, responsibility, and contribution. These components should not be read as an inventory of parallel traits. They describe a conception of the person in which inner orientation and outward participation are related. Accordingly, IMUN treats holistic outcomes as a structured developmental system: beliefs orient reasoning; reasoning informs conduct; conduct is stabilised through practice; and mature capacities are expressed through leadership and social contribution.

Character, agency, and ecological consistency

Character formation involves cognition, emotion, motivation, identity, habit, and action. Lickona (1991) describes good character through moral knowing, moral feeling, and moral action, while Bandura (1986) explains behaviour through reciprocal interaction among personal factors, conduct, and environment. Together, these traditions indicate that student formation cannot be secured through information transmission alone. Learners require credible models, guided rehearsal, feedback, meaningful responsibilities, and an environment that reinforces the same values.

The ecological perspective is equally important. The learner participates simultaneously in classroom, peer,

family, school, digital, and community systems (Bronfenbrenner, 1979). Contradictory signals across these settings can weaken internalisation. A school model must therefore function at two levels: as a map of intended learner development and as a coordination device for adults, programmes, and institutional routines. IMUN was designed for both roles. Its domains specify the breadth of development, its elements name the desired capacities, and its stages clarify movement from interior recognition to observable and increasingly self-regulated practice.

The integrative proposition

IMUN combines three sources. The National Education Philosophy provides the dimensions and national legitimacy; FlexS supplies four organising domains; and IMS contributes value elements and a developmental sequence. The conceptual contribution lies not in placing three labels side by side, but in establishing correspondence among normative aims, educational content, and developmental process. This correspondence was treated as an empirical proposition and subjected to expert judgement rather than accepted solely on conceptual grounds.

The three source frameworks perform distinct but complementary functions within IMUN. FlexS provides the four overarching domains, True Belief, Sound Thinking, Noble Character, and Professional Work Culture, which function as the model's principal value orientations. The National Education Philosophy provides eight dimensions that articulate the intellectual, spiritual, emotional, physical, moral, competence-related, responsibility-related, and contributive qualities expected of a holistically developed learner. The IMS framework translates these domains and dimensions into eight developmentally meaningful student elements, while the IMS developmental model organises their progression through deep awareness, enactment, and self-formation. Consequently, the source frameworks were not combined as parallel lists. They were integrated hierarchically, with the domains functioning as overarching value structures, the dimensions and elements operationalising the intended forms of student development, and the stages specifying how those qualities are progressively internalised and expressed.

The Iman–Ilmu–Amal–Ihsan sequence provides the developmental flow connecting the four domains. Iman establishes the learner's spiritual and value orientation; Ilmu develops sound knowledge and judgement; Amal translates understanding into morally responsible practice; and Ihsan extends such practice towards competence, leadership, and social contribution. This sequence prevents the four domains from being interpreted as independent categories and instead positions them as interrelated aspects of holistic student formation.

METHODOLOGY

Research design

The study adopted Design and Development Research (DDR), which systematically investigates the design, development, and evaluation of educational products, processes, or models (Richey & Klein, 2007). DDR was appropriate because the research problem required both an explanatory understanding of current needs and the construction of a usable model. An ADDIE-informed sequence was condensed into three research phases: needs analysis; design and development; and evaluation. This arrangement retained the logic of analysis, design, development, and evaluation while combining the closely related design and development work.

Table 1. Three-phase research architecture

Phase	Purpose	Participants / evidence	Analysis
I. Needs analysis	Establish the practical and conceptual need for a holistic model	350 secondary students; 350 teachers; 10 Senior Assistants for Student Affairs	Descriptive statistics; thematic analysis
II. Design and	Map philosophical dimensions, domains, elements, and stages;	Literature and framework mapping; 13 purposively	Content mapping; Fuzzy

development	validate the prototype	selected experts	Delphi Method
III. Evaluation	Assess suitability, scalability, application potential, and feasibility	13 experts reviewing the refined prototype	Fuzzy Delphi Method and qualitative comments

Participants and sampling

Phase I involved students and teachers from ten Malaysian public national secondary schools. The participating schools were identified with the assistance of the Ministry of Education on the basis of 2024 Student Discipline System (Sistem Sahsiah Diri Murid, SSDM) records indicating comparatively unsatisfactory disciplinary performance. This selection ensured that the needs analysis was conducted in contexts where the development of a more coherent discipline and character-formation framework was particularly relevant. The student sample comprised 350 Form One to Form Four students, while the teacher sample comprised 350 teachers. Form Five students were excluded in accordance with the conditions specified by the relevant educational research approval authority.

The thesis records that 350 student and 350 teacher cases were selected through simple random sampling from the pool of complete online questionnaire responses obtained from the participating schools. Accordingly, randomisation applied to the selection of completed cases rather than to the initial recruitment of all students and teachers within the participating schools. The student respondents represented six Malaysian states and included 102 students from urban schools and 248 from rural schools. The teacher respondents represented five states and included 136 teachers from urban schools and 214 from rural schools. Most participating teachers had substantial professional experience, with 274 of the 350 teachers reporting at least ten years of service. These characteristics provided evidence from geographically and institutionally varied school settings, although the sample was not intended to represent every Malaysian secondary school.

The qualitative component involved ten Senior Assistants for Student Affairs who were selected purposively from national secondary schools identified through Ministry of Education recommendations and SSDM records as demonstrating comparatively strong disciplinary management. This created a purposeful contrast with the quantitative school contexts: the surveys documented needs in schools experiencing disciplinary difficulties, whereas the student-affairs leaders contributed practice-based accounts from schools with comparatively effective discipline-related performance. Their open-ended responses were used to identify recurring strategies, implementation challenges, and institutional requirements relevant to the construction of IMUN.

Thirteen experts were selected purposively on the basis of their relevant expertise, professional involvement in educational policy or practice, familiarity with student development or values-based education, and capacity to evaluate the model's conceptual and implementation requirements. Their relevant experience ranged from five to 37 years. The panel included expertise in student-affairs management, educational management and leadership, Islamic education and values, IMS-based character development, and FlexS. Members were drawn from policy and administrative agencies, including ministry, state, district, and school levels, as well as public universities and professional training or consultancy settings. Some experts contributed expertise in more than one area; therefore, disciplinary classifications were overlapping rather than mutually exclusive.

This combination was intended to achieve cognitive diversity within a specialised panel by incorporating policy, administrative, academic, developmental, and school-practice perspectives. Expert selection was based on information richness, domain knowledge, and direct relevance to the model rather than statistical representativeness. This combination was intended to achieve cognitive diversity within a specialised panel by incorporating policy, administrative, academic, developmental, and school-practice perspectives. Expert selection was based on information richness, domain knowledge, and direct relevance to the model rather than statistical representativeness. Nevertheless, expert consensus should be interpreted as structured judgement rather than population inference.

Instruments and ethical handling

The needs-analysis instruments comprised closed-ended student and teacher questionnaires and open-ended questions for student-affairs leaders. Expert instruments presented the proposed model, conceptual notes, prototype visualisation, and criteria relating to alignment, clarity, structure, usability, and feasibility. Participation was based on informed agreement, and findings were reported in aggregate for the validation analyses. The article does not reproduce identifiable qualitative comments or personal data beyond the professional composition necessary to interpret panel expertise.

Fuzzy Delphi procedure and decision rules

The Fuzzy Delphi Method (FDM) combines Delphi-based expert judgement with fuzzy-set representation to address ambiguity in linguistic ratings (Murray et al., 1985; Zadeh, 1965). Responses were transformed into triangular fuzzy numbers (m1, m2, m3), representing lower, modal, and upper values. Consensus was assessed through three complementary indicators. First, the threshold distance d had to be no greater than 0.20, indicating acceptable proximity among expert judgements. Second, at least 75% of experts were expected to agree on an item. Third, the defuzzified score a had to be at least 0.50. The defuzzified value was calculated as $a = (m1 + m2 + m3) / 3$.

Using all three criteria prevents a single statistic from carrying the entire interpretive burden. A low threshold indicates convergence, the percentage criterion indicates the proportion supporting the item, and the defuzzified score indicates the overall location of judgement on the response continuum. Construct-level percentages were used to summarise a set of items, but item-level results were retained when they revealed implementation reservations.

Design sequence

The model was developed through four linked operations. First, the research team analysed the relevant components of the National Education Philosophy, FlexS, IMS, and the IMS developmental model. Second, conceptually similar components were mapped to tentative domains and dimensions. Third, the mapping was translated into named student-development elements and connected to developmental stages. Fourth, experts evaluated alignment, internal relationships, clarity, structure, and visual presentation. Their quantitative judgements and qualitative comments informed revision before usability evaluation.

Table 2: Logic of model construction and evaluation

Evidence base	Integrative design	Validation	Refinement and use
National philosophy; school needs; holistic education literature	4 domains + 8 dimensions + 8 elements + 3 developmental stages	Alignment, relational coherence, construct clarity, structure, visualisation	Revised labels; implementation suitability; scalability; applications; feasibility

Analytical integrity

Quantitative needs data were reported descriptively because the purpose was to characterise the development context rather than estimate causal effects. Open-ended responses were organised thematically to identify recurring strategies, gaps, and requirements. Thematic analysis was used as a systematic process of familiarisation, coding, theme development, review, and interpretation (Braun & Clarke, 2006). Integration occurred at the design stage, where the quantitative and qualitative findings were brought together to provide a more comprehensive understanding of the developmental context (Creswell & Plano Clark, 2018). The empirical needs informed what the model had to accomplish, while the philosophical and theoretical sources informed what it should contain. Expert review then tested whether the proposed correspondence was intelligible and usable. The study does not claim that FDM establishes criterion validity or intervention

effectiveness. It establishes content-oriented consensus and preliminary usability. This distinction is central to the interpretation of the findings.

RESULTS

Needs-analysis synthesis

Phase I showed that schools were not inactive. They implemented disciplinary procedures, guidance, counselling, character programmes, co-curricular activities, religious and values-based initiatives, and collaborations with external stakeholders. Students generally perceived school disciplinary management positively, and teachers reported multiple strategies intended to support student development. Yet disciplinary violations persisted, and participating student-affairs leaders described variation in programme coherence and follow-through. Some schools did not use a specific model to guide the design and sequencing of their interventions.

This combination of activity and persistence is analytically important. It suggests that the developmental problem cannot be reduced to the absence of programmes. Three needs were inferred. First, schools require a common language that links spiritual, intellectual, emotional, physical, moral, competence, and social outcomes. Second, programme designers require an explicit sequence showing how awareness is translated into practice and stable self-formation. Third, evaluation must move beyond counting activities or offences toward assessing developmental indicators.

Final architecture of IMUN

The refined model contains four domains, each expressed through two dimensions and two elements. The first two domains establish inner orientation and thought; the third organises moral identity and enacted character; and the fourth extends formation into competence, leadership, and contribution. The model also identifies an Iman-Ilmu-Amal-Ihsan development flow, preventing the domains from being interpreted as unrelated compartments.

Table 3: Conceptual mapping of the source frameworks into the validated IMUN architecture

Developmental flow	FlexS domain	National Education Philosophy dimension	IMS-derived IMUN element	IMS developmental stage
Iman	True Belief	Spiritual development	God-conscious living	Deep awareness
Iman	True Belief	Belief in and obedience to God	Steadfast faith	Enactment
Ilmu	Sound Thinking	Intellectual development and knowledge	Guidance by the Prophetic approach	Deep awareness
Ilmu	Sound Thinking	Emotional and physical well-being	Critical and balanced judgement	Enactment
Amal	Noble Character	Noble morality	Spirit of servitude	Deep awareness
Amal	Noble Character	Responsibility	Morality grounded in value awareness	Enactment
Ihsan	Professional Work Culture	Competence	Potential development	Self-formation
Ihsan	Professional Work Culture	Contribution to family, society, and nation	Leadership and social contribution	Self-formation

FlexS provides the four overarching domains; the National Education Philosophy provides the holistic dimensions; the IMS framework informs the student-development elements; and the IMS developmental

model provides the stages of deep awareness, enactment, and self-formation. The final English labels reflect refinements arising from expert evaluation.

Table 3 demonstrates that each IMUN component has a defined conceptual origin and developmental function. The domains specify the broad value orientation, the dimensions describe the holistic qualities intended by national education, the elements translate those qualities into more focused student-development constructs, and the stages indicate the expected progression from recognition and understanding to sustained practice and self-directed formation. The mapping therefore establishes traceability from the source frameworks to the final architecture rather than merely presenting the components as an assembled list.

Alignment and internal coherence

The first expert-validation cycle examined whether the model remained faithful to its sources and whether its components formed a coherent system. All assessed item sets met the threshold and defuzzification requirements. Overall agreement was highest for alignment with the National Education Philosophy (92%), followed by alignment with FlexS and IMS (both 85%). Experts also supported the relationships among domains, dimensions, and elements (82%) and the clarity of the holistic student-outcome construct (79%).

Table 4: Expert validation of conceptual alignment

Validation construct	Items	Construct threshold d	Overall agreement	Decision
Alignment with National Education Philosophy	4	0.11	92%	Accepted
Alignment with FlexS	3	0.147	85%	Accepted
Alignment with IMS	3	0.154	85%	Accepted
Domain-dimension-element relationships	3	0.142	82%	Accepted
Clarity of holistic student-outcome construct	7	0.1	79%	Accepted

The pattern supports two conclusions. First, the model is strongly anchored in the National Education Philosophy rather than operating as a parallel institutional framework. Second, agreement decreased modestly as judgements moved from broad philosophical alignment to the clarity of the operational construct. This is expected: general principles often attract wider agreement than the precise wording and relationship of model components. The result justified retention of the architecture while also supporting targeted refinement of labels.

Prototype structure and visualisation

Experts distinguished between the conceptual structure and its visual communication. Structural evaluation achieved 90% overall agreement with a construct threshold of 0.182, indicating strong support for the arrangement of the model. Visualisation achieved 73% overall agreement with a construct threshold of 0.164. Although the visualisation items satisfied the threshold and defuzzification requirements, the overall agreement fell below the study's predefined 75% benchmark. Item-level analysis further showed that Items 1 and 3 achieved only 46% and 62% agreement, respectively. Expert comments identified the need for clearer colour differentiation, contrast, form, layout, labelling, and directional flow.

This distinction is substantively valuable. A valid model can be poorly communicated, and an attractive diagram can conceal conceptual weakness. The experts' responses indicated the reverse pattern: the underlying structure was strong, but the initial representation needed improvement. Revisions therefore preserved the four-domain architecture while clarifying the developmental flow and replacing several labels that were ambiguous, narrow, or insufficiently accessible to intended users.

Refinement after expert review

Expert feedback produced meaningful semantic revisions. Mahabbah Rasul was reformulated as "Guidance by the Prophetic approach" to clarify that the element encompasses a disciplined way of learning, reasoning, and acting rather than affective attachment alone. "Critical and wise" became "Critical and balanced judgement," linking reasoning to emotional and physical well-being. "Ihsan and civility" was refined to "Morality grounded in value awareness," which more clearly identifies internalised values as the basis for conduct. "Holistic self-development" became "Potential development," and "social agent" became "Leadership and social contribution.

The revisions also sharpened the developmental allocation. Early proposals allowed some elements to span enactment and self-formation. The final model assigns a primary stage to each element: deep awareness for God-conscious living, Prophetic guidance, and the spirit of servitude; enactment for steadfast faith, critical and balanced judgement, and value-aware morality; and self-formation for potential development, leadership, and social contribution. The stages remain dynamically connected, but primary placement improves programme design and assessment.

Table 5: Principal refinements and their conceptual effects

Initial label	Refined element	Effect of revision
Mahabbah Rasul	Guidance by the Prophetic approach	Clarifies an epistemic and behavioural method, not only an affective disposition.
Critical and wise	Critical and balanced judgement	Connects reasoning to emotional regulation, physical well-being, and ethical balance.
Ihsan and civility	Morality grounded in value awareness	Makes internalised value-consciousness the explicit basis of moral action.
Holistic self-development	Potential development	Creates a more observable focus for competence and sustained growth.
Social agent	Leadership and social contribution	Specifies responsible influence and contribution across family, community, and nation.

Three-stage developmental mechanism

Deep awareness refers to insight that reorganises how a learner interprets self, knowledge, relationships, and responsibility. Enactment refers to repeated application in authentic choices and routines. Self-formation refers to a degree of consistency at which values become part of identity, competence, and contribution. The stages should not be mistaken for a rigid age sequence or a claim that development is linear. Learners may regress, revisit awareness, or demonstrate uneven development across domains. The model instead offers a pedagogical sequence: make meaning explicit, create supported opportunities to act, and progressively transfer responsibility to the learner.

Usability and implementation evaluation

The final evaluation examined the model as a candidate tool for educational practice. Experts reported 92% agreement on implementation suitability, 98% on scalability, 87% on application in intervention modules, values curricula, and character-development programmes, and 80% on feasibility. All construct-level thresholds were at or below 0.151 and therefore satisfied the specified $d \leq 0.20$ criterion.

Table 6: Usability evaluation

Construct	Items	Threshold d	Agreement	Interpretation
Implementation suitability	4	0.145	92%	High consensus; strongest fit for secondary schools

Scalability	5	0.151	98%	Very high potential for wider adaptation
Application potential	6	0.118	87%	Strong potential for modules, curriculum, counselling, leadership, and assessment
Feasibility	5	0.142	80%	High overall consensus, with two item-level cautions

The suitability findings indicate that the model was considered understandable to teachers, lecturers, and students and adaptable across educational levels, with the highest-rated context being secondary schools. Scalability findings suggest potential alignment with national character-development priorities and adaptation across school types. Application findings were especially strong for using IMUN as the basis of student-character modules and as learning outcomes within values curricula. Experts also supported applications in counselling, student leadership, phased interventions, teacher development, and psychosocial and moral assessment.

Feasibility cautions

Construct-level feasibility should not obscure the item-level evidence. The statement that the model would not require high implementation cost received only 69% agreement and was rejected under the 75% rule, although its fuzzy score remained above 0.50. The claim that teachers and lecturers could implement the model without complex intensive training received 54% agreement and was also rejected. By contrast, experts accepted that the model could be mapped into school programmes, delivered digitally, and developed into a student-assessment instrument.

These results reframe feasibility. IMUN is not a "plug-and-play" diagram. Its architecture is implementable, but implementation requires investment in curriculum mapping, professional learning, exemplars, facilitation protocols, assessment rubrics, and monitoring. The result protects against a common implementation error: confusing conceptual accessibility with instructional readiness.

Item-level qualifications of the Fuzzy Delphi results

Table 7: Item-level Fuzzy Delphi results for criteria requiring qualification

Evaluation area and item	**Threshold *d***	**Expert agreement**	**Defuzzified score *a***	**Decision**
Initial prototype visualisation, Item 1	0.174	46%	0.615	Did not meet the 75% agreement criterion
Initial prototype visualisation, Item 2	0.174	92%	0.677	Accepted
Initial prototype visualisation, Item 3	0.13	62%	0.615	Did not meet the 75% agreement criterion
Initial prototype visualisation, Item 4	0.177	92%	0.692	Accepted
The model does not require high implementation costs	0.13	69%	0.662	Did not meet the 75% agreement criterion
The model can be mapped easily onto school programmes	0.108	77%	0.754	Accepted
The model can be implemented digitally	0.145	100%	0.723	Accepted
The model can be developed into a student-assessment framework	0.152	100%	0.692	Accepted
Teachers and lecturers can implement the model without complex intensive training	0.177	54%	0.585	Did not meet the 75% agreement criterion

Note. Full item acceptance required all three predefined criteria: $d \leq 0.20$, expert agreement ≥75%, and a ≥0.50. Items that met the threshold and defuzzification requirements but did not achieve 75% agreement were classified as not meeting the full item-level consensus criterion. The visualisation item numbers correspond to the original expert-evaluation instrument. Qualitative comments associated with Items 1 and 3 indicated concerns relating to colour differentiation, contrast, form, layout, labelling, and visual flow.

Item-level analysis qualified the generally favourable construct-level findings. For the initial prototype visualisation, Items 1 and 3 achieved acceptable threshold and defuzzification values but did not achieve the predefined 75% agreement criterion. Qualitative feedback indicated that colour differentiation, contrast, shape, layer visibility, labelling, and directional flow required improvement. The prototype was therefore visually refined without changing its underlying conceptual architecture. These results should be reported as evidence of revision-responsive validation rather than as unqualified acceptance of the initial visual design.

A similar qualification applies to feasibility. Although the feasibility construct achieved 80% overall agreement, the assumptions that implementation would require little expenditure and could proceed without structured intensive training achieved only 69% and 54% agreement, respectively. Both items nevertheless met the threshold and defuzzification requirements, but because they failed the 75% agreement requirement, they did not satisfy the complete item-level acceptance rule. Rather than invalidating the model as a whole, these results indicate uncertainty regarding the resources and professional capacity required for responsible implementation. Cost planning, implementation guidance, and structured professional learning should consequently be treated as prerequisites for future piloting.

DISCUSSION

From fragmented programmes to developmental coherence

The principal contribution of IMUN is architectural coherence. Many schools already conduct activities related to discipline, spirituality, leadership, welfare, citizenship, and academic motivation. The challenge is that these activities can remain administratively adjacent but developmentally disconnected. IMUN offers a shared map through which programme objectives, pedagogical activities, student reflections, and evidence of growth can be aligned. In this sense, the model is less a new programme than a framework for coordinating existing and new practices.

The model's four domains also resist a false opposition between spirituality and capability. True Belief and Sound Thinking are not treated as private dispositions detached from performance; Noble Character and Professional Work Culture extend inner orientation into conduct, competence, and contribution. Conversely, competence is not interpreted as value-neutral efficiency. It is nested within responsibility and ihsan. This structure reflects the integrative intent of the National Education Philosophy and offers a culturally grounded response to international calls for whole-person development (MOE, n.d.; UNESCO, 2021).

Development as awareness, enactment, and formation

The three stages address a persistent weakness in values education: the assumption that exposure produces internalisation. Deep awareness is not mere recall; it entails recognising why a value matters and how it reframes perception. Enactment provides situated practice under conditions of choice, feedback, and accountability. Self-formation denotes increasing consistency and agency, visible in the learner's ability to regulate conduct, develop potential, lead, and contribute. This sequence echoes the distinction among moral knowing, feeling, and action (Lickona, 1991) while extending the endpoint toward identity and public responsibility.

The mechanism also supports better assessment. A single behaviour should not be interpreted without attention to stage and context. For example, compliance with a rule may show enacted behaviour but not necessarily deep awareness or self-regulation. Evidence should therefore include explanation of meaning, conduct across varied situations, reflection after error, persistence over time, and contribution without immediate external

reward. Assessment becomes developmental and triangulated rather than punitive or episodic.

Consensus as preliminary validation

The FDM results provide credible evidence that knowledgeable stakeholders found the architecture aligned, coherent, and usable. The high agreement for philosophical alignment and scalability is particularly encouraging. Yet consensus is not proof of effectiveness. Expert panels may share professional assumptions, and fuzzy aggregation can make uncertainty more tractable without eliminating judgement. The appropriate claim is therefore that IMUN has content-oriented and usability validity sufficient to justify implementation research—not that the model has already improved student outcomes.

Implications for school leadership and student affairs

For school leaders, IMUN can function as a programme-audit matrix. Existing initiatives can be mapped against domains, elements, stages, target groups, learning activities, responsible personnel, and evidence of change. Such mapping can reveal overconcentration, for example, repeated awareness talks with few opportunities for authentic enactment, or neglect of elements such as potential development and social contribution. The model thus supports strategic coherence without requiring every school to implement identical activities.

Student-affairs units can use the model to redesign discipline from an event-response system into a developmental system. Sanctions may still be necessary for safety and justice, but they should be connected to reflection, restitution, skill building, mentoring, and reintegration. A violation related to peer harm, for example, can be addressed through accountability alongside empathy, value awareness, communication practice, and constructive contribution. This moves the focus from stopping misconduct to rebuilding the learner's capacity for responsible participation.

Implications for curriculum and pedagogy

Curriculum teams can translate each element into age-appropriate outcomes and learning progressions. God-conscious living and Prophetic guidance may be cultivated through reflection, inquiry, textual engagement, and ethical reasoning; critical and balanced judgement through evidence evaluation, emotional regulation, deliberation, and health-conscious decision making; value-aware morality through case analysis and service; and professional work culture through projects requiring planning, quality, perseverance, teamwork, leadership, and public contribution.

Pedagogically, the stages imply a recurrent lesson design: elicit prior meaning, examine a compelling problem, articulate the value and its basis, rehearse a decision or practice, apply it in an authentic task, receive feedback, reflect, and transfer responsibility. The approach is compatible with experiential and project-based learning, provided that reflection and ethical purpose are explicit. It also aligns with social-cognitive principles: adult modelling, peer norms, self-efficacy, and feedback shape whether stated values become action (Bandura, 1986).

Professional learning as an implementation condition

The rejection of "no intensive training required" is among the most useful findings. Teachers must learn to distinguish indoctrination from guided ethical inquiry, compliance from internalisation, and isolated activities from progression. Professional learning should include conceptual understanding of the model, curriculum mapping, facilitation of sensitive dialogue, inclusive adaptation, developmental assessment, and the ethical use of student data. Coaching and collaborative moderation are likely to be more effective than a single briefing because implementation involves judgement, not only procedural fidelity.

Measurement and evaluation framework

A future IMUN assessment system should avoid collapsing holistic development into one total score. The

domains represent related but distinct aspects of formation, and development may be uneven. A profile approach is therefore preferable. Indicators can be organised by element and stage, using multiple sources: student self-reflection, teacher observation, work products, peer or mentor feedback, participation records, and structured performance tasks. Behavioural evidence should be gathered across time and settings.

Measurement development should proceed through explicit construct definitions, item generation, cognitive interviewing, pilot testing, reliability analysis, and validity studies (DeVellis & Thorpe, 2021). Evidence is required for content relevance, response processes, internal structure, relationships with external variables, and consequences of use. Spiritual and moral constructs demand particular caution because socially desirable responses and authority effects can inflate scores. Confidentiality, formative use, student voice, and protection against labelling must be built into the system.

Equity and cultural responsiveness

Although IMUN is explicitly grounded in an Islamic and Malaysian philosophical context, implementation in national schools must recognise religious, linguistic, cultural, socioeconomic, and ability diversity. Shared educational purposes such as integrity, responsibility, well-being, knowledge, competence, respect, and contribution should be communicated in ways that uphold the constitutional and policy context while avoiding coercive or deficit interpretations of difference. Adaptation should preserve the model's core relationships but vary examples, pedagogies, supports, and forms of participation.

Equity also requires attention to opportunity. Students cannot be judged for weak "professional work culture" if programmes do not provide meaningful roles, accessible resources, mentoring, or reasonable accommodations. Assessment must therefore examine both learner development and the quality of the environment created by adults.

LIMITATIONS AND FUTURE RESEARCH

This study has five principal limitations. First, the needs analysis relied substantially on perceptions and descriptive data. It established a development need but did not isolate the causes of disciplinary behaviour or test relationships among model constructs. Second, purposive expert selection was necessary for specialised judgement, but the panel cannot represent every Malaysian school context. Third, the same 13 experts contributed to model validation and usability evaluation, which may have increased continuity while also creating familiarity effects.

Fourth, FDM provides structured evidence of consensus, not predictive, construct, or consequential validity. Thresholds and percentages indicate convergence around proposed items; they do not show that the model changes behaviour, improves well-being, or strengthens learning. Fifth, the present English rendering necessarily interprets culturally specific Malay and Arabic-derived concepts. Any international use should retain transparent definitions and involve bilingual conceptual validation rather than assuming direct lexical equivalence.

Priorities for empirical testing

The next research phase should develop a manual, professional-learning package, age-specific indicators, and implementation-fidelity measures. A small feasibility pilot can examine recruitment, training time, acceptability, data burden, safeguarding, and the fit between model activities and school routines. Qualitative observation and interviews should investigate how teachers interpret the stages and how students experience the programme.

Effectiveness should then be evaluated using a cluster design where feasible. Schools, rather than individual students, could be assigned to phased implementation or comparison conditions to reduce contamination. Baseline equivalence, attrition, implementation dosage, and contextual moderators should be documented. Outcomes should include disciplinary incidents but not be limited to them; measures of ethical reasoning, self-

regulation, well-being, school belonging, leadership, contribution, attendance, and academic engagement are relevant. Multilevel analysis would account for students nested within classes and schools.

A programme-theory approach

A theory-of-change evaluation would strengthen causal explanation. Inputs include leadership commitment, trained facilitators, time, learning materials, digital support, and partnerships. Activities include reflective inquiry, modelling, guided practice, restorative processes, projects, and mentoring. Proximal outcomes include shared language, value awareness, self-regulation strategies, and opportunities for contribution. Intermediate outcomes include consistent conduct, stronger relationships, competence, and student agency. Longer-term outcomes concern holistic development and responsible participation. Contextual conditions, school climate, staff turnover, family engagement, resources, and policy alignment, should be modelled rather than treated as noise.

Participatory refinement

Future development should include students, teachers, counsellors, parents, and community partners as co-designers. Expert agreement established a defensible starting architecture; participatory inquiry can test whether terms, activities, and indicators are meaningful in daily life. Iterative cycles of enactment, feedback, and revision would be consistent with DDR and could reveal unintended effects before large-scale adoption.

CONCLUSION

IMUN offers a structured answer to a practical educational problem: how to translate a holistic national philosophy into a coherent, staged, and usable model of student formation. The framework integrates four domains, True Belief, Sound Thinking, Noble Character, and Professional Work Culture, with eight dimensions, eight student-development elements, and three stages of deep awareness, enactment, and self-formation. Its internal logic connects Iman, Ilmu, Amal, and Ihsan, moving from orientation and understanding toward ethical practice, competence, leadership, and contribution.

The expert-consensus evidence is strong within its intended content-and-usability scope. Experts endorsed the model's conceptual alignment with the National Education Philosophy, FlexS, and IMS; the relationships among its components; its prototype structure; and its perceived suitability, scalability, application potential, and feasibility. These findings support the acceptability and further development of IMUN but should not be interpreted as evidence that the model has already produced measurable changes in student outcomes.

The initial reservations regarding visualisation led to revisions in colour, form, contrast, labelling, and layer arrangement. More importantly, the rejection of the assumptions concerning low implementation cost and implementation without intensive training identifies the organisational and professional capacity required before field implementation can be evaluated responsibly.

For schools, IMUN can provide a common language for connecting curriculum, student affairs, counselling, discipline, leadership, co-curriculum, and community engagement. For researchers, it offers a specified programme theory that can be operationalised and tested. For policymakers, it demonstrates how a national philosophical statement can be translated into a model while retaining cultural and moral depth. The next step is not premature institutionalisation but disciplined piloting: define indicators, prepare educators, protect student dignity, examine implementation fidelity, and test outcomes across diverse school contexts.

The central proposition is that holistic outcomes emerge neither from isolated values lessons nor from external discipline alone. They require an ecology in which learners understand what is good, practise it under authentic conditions, receive guidance and feedback, and increasingly assume responsibility for who they become and what they contribute. IMUN makes that developmental proposition explicit and therefore open to scrutiny, refinement, and empirical evaluation.

Declarations: Generative artificial intelligence was used to assist with English-language editing, structural organisation, and refinement of the manuscript. All AI-assisted content was critically reviewed, revised, and verified by the authors. The authors retain full responsibility for the scholarly arguments, citations, interpretation of findings, and final content. AI was not used to collect, generate, modify, or analyse the research data.

Funding: This research received no external funding.

Conflicts of interest: The authors declare no conflict of interest.

Ethics statement: Ethical approval to conduct the study was obtained from Universiti Sultan Zainal Abidin. Permission to conduct the study in participating schools was also obtained from the relevant educational authorities. Informed consent was obtained from all participants and, where applicable, from the parents or legal guardians of participating students.

Data availability: The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to ethical and institutional restrictions.

Author contributions: Rosmawati Yusof @ Othman: conceptualisation, methodology, investigation, formal analysis, and original draft preparation. Zuraidah Juliana Mohamad Yusoff: supervision, conceptual review, and manuscript review.

Acknowledgement: This article was developed from the doctoral thesis entitled "Development of an Integrative Model of Excellent Students in Shaping Holistic Student Outcomes," submitted to Universiti Sultan Zainal Abidin, Malaysia.

REFERENCES

1. Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Prentice-Hall.
2. Berkowitz, M. W., & Bier, M. C. (2005). What works in character education: A research-driven guide for educators. Character Education Partnership.
3. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77-101. https://doi.org/10.1191/1478088706qp063oa
4. Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. Harvard University Press.
5. Creswell, J. W., & Plano Clark, V. L. (2018). Designing and conducting mixed methods research (3rd ed.). SAGE.
6. DeVellis, R. F., & Thorpe, C. T. (2021). Scale development: Theory and applications (5th ed.). SAGE.
7. Kuh, G. D., O'Donnell, K., & Schneider, C. G. (2017). HIPs at ten. Change: The Magazine of Higher Learning, 49(5), 8-16. https://doi.org/10.1080/00091383.2017.1366805
8. Lickona, T. (1991). Educating for character: How our schools can teach respect and responsibility. Bantam Books.
9. Ministry of Education Malaysia. (2013). Malaysia education blueprint 2013-2025: Preschool to post-secondary education. https://www.moe.gov.my/dasarmenu/pelan-pembangunan-pendidikan-2013-2025
10. Ministry of Education Malaysia. (n.d.). Falsafah Pendidikan Kebangsaan. Retrieved August 18, 2026, from https://www.moe.gov.my/falsafah-pendidikan-kebangsaan
11. Miseliunaite, B., Kliziene, I., & Cibulskas, G. (2022). Can holistic education solve the world's problems? A systematic literature review. Sustainability, 14(15), 9737. https://doi.org/10.3390/su14159737
12. Murray, T. J., Pipino, L. L., & van Gigch, J. P. (1985). A pilot study of fuzzy set modification of Delphi. Human Systems Management, 5(1), 76-80. https://doi.org/10.3233/HSM-1985-5111
13. OECD. (2021). Beyond academic learning: First results from the Survey of Social and Emotional Skills. OECD Publishing. https://doi.org/10.1787/92a11084-en

14. Richey, R. C., & Klein, J. D. (2007). Design and development research: Methods, strategies, and issues. Lawrence Erlbaum Associates.
15. UNESCO. (2021). Reimagining our futures together: A new social contract for education. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000379707
16. Zadeh, L. A. (1965). Fuzzy sets. Information and Control, 8(3), 338-353. https://doi.org/10.1016/S0019-9958(65)90241-X