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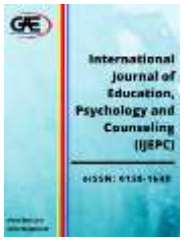

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INVESTIGATING TEACHERS' BELIEFS AND PEDAGOGICAL PRACTICES IN THE INTEGRATION OF ISLAMIC VALUES, ENGLISH LANGUAGE TEACHING, AND STEM EDUCATION

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Abstract:

The integration of Islamic values, English language teaching (ELT), and STEM education reflects Malaysia's aspiration for holistic and values-driven education. Despite increasing policy emphasis on integrated curricula, limited empirical research has examined how teachers conceptualise and enact this three-domain integration in practice. This qualitative study explores teachers' beliefs and pedagogical practices in

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integrating Islamic values, English, and STEM education, focusing on their conceptual understanding, instructional challenges, and pedagogical strategies. Semi-structured interviews were conducted with purposively selected teachers teaching English and STEM-related subjects in values-oriented school contexts. Data were analysed using thematic analysis. The findings reveal three key themes: fragmented conceptualisation of integration, pedagogical tensions shaped by curriculum and assessment demands, and adaptive strategies for embedding Islamic values within language and STEM instruction. While teachers expressed strong commitment to values-based education, many struggled to operationalise integration in systematic and pedagogically coherent ways. The study contributes to the literature on integrated education by foregrounding teachers' voices and highlighting professional development needs related to conceptual clarity, interdisciplinary pedagogy, and practical classroom enactment. Implications are discussed for teacher education and professional learning initiatives aimed at supporting meaningful integration across domains.

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Keyword:

Teacher Beliefs, Islamic Values, English Language Teaching, STEM Education, Thematic Analysis, Professional Development

Introduction

Malaysia's education system places strong emphasis on holistic learner development, encompassing intellectual, moral, spiritual, and social dimensions. Within this framework, the integration of Islamic values across subject areas has been promoted as a means of nurturing ethically grounded and socially responsible learners (Juwairiyah&Fanani, 2025). At the same time, English language proficiency and STEM competencies are prioritised to prepare learners for global engagement and future workforce demands (Al-khresheh et al., 2025).

While policy documents advocate integrated and values-driven education, the enactment of such integration at classroom level remains complex. Teachers are expected to align language learning outcomes, STEM concepts, and Islamic values within constrained instructional contexts. Teachers' beliefs therefore play a pivotal role in mediating how integration is understood and implemented.

Despite growing discourse on integrated curricula, empirical studies examining teachers lived experiences of integrating Islamic values, ELT, and STEM education remain scarce.

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This study aims to:

- To explore teachers' beliefs regarding the integration of Islamic values, English language teaching (ELT), and STEM education.
- To examine the pedagogical practices used by teachers in integrating Islamic values within English and STEM instruction.
- To identify the challenges faced by teachers in implementing three-domain integration in classroom contexts.
- To investigate the strategies employed by teachers to address these challenges and support meaningful integration

Literature Review

Falsafah Pendidikan Kebangsaan (FPK) emphasizes that the main purpose of education is to "develop individual potential comprehensively and integratedly", which covers physical, emotional, spiritual, intellectual and social aspects. In this framework, education is not just the transmission of knowledge, but the process of building human beings who are able to contribute to the harmony and progress of the country. Intellectual development focuses on the mastery of knowledge and thinking skills, while spiritual and moral development emphasizes aspects of faith, morality and life values. Social development is closely related to interaction skills, empathy and leadership in the context of a plural society such as Malaysia (MOE, 2023).

The holistic education outlined in this policy is not merely a slogan, but is grounded in the curriculum and co-curricular, including in the assessment approach and learning environment. In the context of Islam, the holistic approach in Islamic education is a substantive educational framework that comprehensively integrates intellectual, spiritual, and emotional development through curriculum, assessment, and learning environment. Multiple studies provide strong evidence for this approach. Yenni Zuraidah et al. (2024) emphasize that Islamic education goes beyond knowledge transfer, focusing on forming moral and spiritual character through tarbiyah. Siti Fatimah et al. (2024) found that curriculum integration combining intellectual, spiritual, and emotional aspects significantly enhances students' understanding of religious values. Amanda Briliant et al. (2025) specifically demonstrated that this holistic approach increases students' comprehension of Islamic values and improves character development. M. Aderi et al. (2025) further validated this by developing an assessment framework based on faith, sharia, and moral dimensions, ensuring a comprehensive educational experience that addresses body, mind, and spirit simultaneously.

Policy Emphasis on Values-Based and Integrated Curricula (Islamic Values, Language, And STEM)

Malaysia has taken proactive steps to integrate noble values, especially Islamic values, in various subjects such as Malay Language, Science, Mathematics and History. The Kurikulum Standard Sekolah Rendah (KSSR) and Kurikulum Standard Sekolah Menengah (KSSM) restructure the learning content to be comprehensive and integrate moral and ethical values across the curriculum. This modular, cross-disciplinary and contextual curriculum allows students to build a comprehensive understanding that is relevant to real life.

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In STEM subjects in particular, the integration of Islamic values is also applied by emphasizing the value of responsibility towards the environment, cleanliness, honesty in experiments, and the manners of seeking knowledge. Meanwhile, mastery of English and Malay is used as a vehicle to convey messages of universal values and build empathy and cross-cultural communication. The integration of Islamic values in STEM education systematically emphasizes environmental responsibility, experimental ethics, and principled knowledge acquisition through a holistic learning approach. Multiple studies demonstrate this integration (Sahjad et al., 2023). Specifically, researchers found that incorporating Islamic principles like environmental consciousness, honesty, and social responsibility can create curricula balancing academic excellence with moral development (Mei Rahmani, 2025).

Regarding language as a value vehicle, evidence is indeed limited. Ros Anita Kartini&Abdul Halim (2022) provides only preliminary insights into using Malay literary elements in STEM, suggesting this remains an under-researched area requiring more comprehensive investigation. The sources unanimously emphasize value integration, but the specific role of English or Malay as universal value transmission mechanisms remains an open research question.

Tensions Between Policy Ideals and Classroom Realities

Malaysian education faces systemic challenges in implementing integrated, values-based approaches, as exam-oriented teaching undermines holistic goals. Shahazwan et al. (2025) identified an "exam-centric culture" and "heavy administrative workloads" that hinder student-centred formative assessment. Amin and Ahmed (2021) reported that 75% of teachers struggle to inculcate Islamic values, while Elis Trianti and Irawan (2025) noted pressures to prioritise academic results over character development. Similarly, Fadhlillah and Jibril (2025) argued that accreditation demands emphasise measurable outputs rather than spiritual growth. Although policies advocate holistic learning, implementation remains constrained by performance expectations.

Teachers also face barriers such as inadequate training, assessment pressures, and curriculum constraints. Quynh Thi Nhu Nguyen and Son Van Huynh (2024) found limited formal training and conceptual understanding of values integration. Astrid Johansen et al. (2022) showed that objectivity-driven assessment systems restrict creative, values-based teaching, while Susilo Hadi et al. (2025) highlighted challenges in integrating values within mathematics curricula.

Islamic Values and English Language Teaching (ELT)

Some of the Islamic education scholars have stressed that the infusion of Islamic values into instruction should be regarded as an attempt to integrate faith, knowledge and morality throughout the delivery system. According to Ferdinan et al., (2025) this implies that Islamic value is not only taught through the subject of religion but also implanted into all other subjects as students' view and opinion on any kind of knowledge, morality and education target. This is congruent with the values education philosophy that value infusion happens throughout elements of an education experience, and not just through direct moral teaching (Lovat et al., 2010).

Integrating Islamic values into English Language Teaching (ELT) serves as a vital strategy for strengthening religious and cultural identity while learning a global language often perceived as secular or Western-centric. By embedding materials like the Qur'an, Hadith, and Islamic stories, educators can reduce cultural tension and help students view English as a functional

tool rather than a threat to their faith (Selim et al., 2025; Rohmana, 2020; Fathiyaturrahmah et al., 2025). This approach allows learners to differentiate between Western and Islamic cultures, fostering an environment where students particularly in boarding schools feel their religious integrity is protected (Djamdjuri et al., 2023; Romadhon, 2024; Rahmatika & Izzah, 2024).

Furthermore, this integration aligns language learning with the broader aims of Islamic education, which prioritizes moral character and spiritual growth alongside academic skills (Mansoor et al., 2025; Safitri et al., 2023; Sholeh et al., 2022). Using culturally relevant content, such as the history of Muslim scientists, not only improves vocabulary retention and student engagement but also prevents the "subtractive loss" of identity (Mulyati&Kultsum, 2023; Sultan, 2025; Syabilla, 2025). Ultimately, educators fulfill their duty to safeguard students' values by promoting a hybrid identity that balances global linguistic competence with a steadfast commitment to Islamic heritage (Sidqurrahman, 2024; Saud et al., 2023; Almayez, 2022).

Integrating Values In ELT: Strategies and Key Challenges

Using literary works and authentic texts that reflect social issues, cultural diversity, and moral dilemmas is a key approach in moral education within English language teaching, as it enables the integration of value-oriented instruction that not only enhances language proficiency but also fosters students' humanistic qualities and sense of social responsibility (Awang Ali et al., 2025; Li&Tang, 2025; Sugiono, 2022).

Moral education in English language teaching at the high school level places strong emphasis on moral discussions and value clarification, where classroom discussions on social issues and globalization encourage students to critically reflect on values, while value-oriented ELT prioritizes helping learners explore and clarify their own values rather than adopting those imposed by teachers (Wan Hamedi et al., 2025; Awang Ali et al., 2025; Li&Tang, 2025; Hussein et al., 2025; Rose et al., 2020; Sugiono, 2022).

Contextualised language tasks in English Language Teaching, including task-based, project-based, and problem-based learning, are effective in embedding values through realistic communicative activities such as group work, role plays, debates on social issues, simulated meetings, and community-related projects, as these approaches simultaneously enhance practical language use while fostering students' social and ethical awareness (Sapuan et al., 2025; Golubovschi, 2024; Peng, 2024; Anuradha, 2024; Amajihono et al., 2025; Hayati et al., 2021; Li & Tang, 2025; Yangiboyeva, 2025; Shi, 2024).

Islamic Values and STEM Education

Debates framing STEM as "value-neutral" obscure the reality that STEM curricula embed economic, political, and social priorities. Critical scholarship shows STEM is positioned as a driver of growth and competitiveness, while philosophical analyses reveal technoscience as inherently value-laden, including ethical and religious dimensions often masked as neutrality; even standards like the NGSS embed performance and self-investment values (Takeuchi et al., 2020; Ortiz-Revilla et al., 2020; Hoeg & Bencze, 2017; Jones et al., 2024; Vedrenne-Gutiérrez et al., 2024).

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In response, research advances Islamic values as an explicit framework for STEM, grounding inquiry in concepts such as tawhid, khalifah, mizan, maslahah, amanah, adl, and hifz al-'aql. Reviews and case studies argue this integration aligns scientific knowledge with moral responsibility and societal wellbeing (Judijanto & Yusniar, 2025; Siron, 2024; Addainuri, 2025; Baehaqi et al., 2024; Hadi, 2025; Rahmani, 2025; Hidayat et al., 2020; Addzaky et al., 2025). Proposed strategies include Qur'anic framing of inquiry, drawing on Muslim scholarly heritage, and project-based learning linking STEM challenges to stewardship and justice (Siron, 2024; Baehaqi et al., 2024; Rahmani, 2025; Hidayat et al., 2020; Judijanto & Yusniar, 2025; Addainuri, 2025; Hadi, 2025; Nurahman et al., 2025).

However, integration faces a persistent science–religion dichotomy, where religion becomes mere legitimation rather than an equal epistemology, creating inconsistency in practice (Hidayat et al., 2020; Judijanto & Yusniar, 2025; Baehaqi et al., 2024; Rahmani, 2025). Additional barriers include limited teacher preparation, weak curricular models, and global policy pressures privileging standardised performance over ethical aims (Judijanto & Yusniar, 2025; Siron, 2024; Baehaqi et al., 2024; Hadi, 2025; Nurahman et al., 2025; Takeuchi et al., 2020; Jones et al., 2024; Vedrenne-Gutiérrez et al., 2024; Yilmaz&Ayaz, 2021).

Contemporary research reconceives STEM as ethically and spiritually responsible rather than neutral. Social justice, scientific responsibility, and sustainability are increasingly central, particularly in high-impact fields like AI and biomedicine (Vedrenne-Gutiérrez et al., 2024; Chen et al., 2025; Alimin et al., 2024). Ethics education is shifting from rule compliance to institutional and cultural transformation, embedding socio-scientific debates and project-based ethics into curricula (Zhu et al., 2024; Xu et al., 2025; Yilmaz & Ayaz, 2021; Fernandez & Rivera-Jimenez, 2024).

Spirituality is also recognised as a motivating force in STEM practice, with Malaysian studies highlighting religiously grounded integrity and sustainable innovation (Bajuri et al., 2021). Christian and Islamic perspectives frame STEM professionals as stewards or co-creators, advocating scriptural reflection and ethical case studies (Ruban, 2025; Addainuri, 2025; Falah & Hasiolan, 2025). Models such as "Soulful Science" illustrate how integrating religious dialogue counters technocratic reductionism and promotes holistic development (Tawiah et al., 2024).

Overall, STEM is increasingly understood as ethically saturated and spiritually significant. Realising value-informed STEM requires coherent curriculum design, teacher preparation, institutional change, and resistance to purely utilitarian discourses.

Reported Classroom Practices in Value-Informed STEM

Across religiously grounded STEM contexts (primarily Islamic, but also Christian and multi-faith), three recurring themes emerge: problem-/project-based learning, real-world ethical applications, and teacher tensions in aligning science with religion.

PBL and PjBL are widely used to integrate Islamic values into STEM, combining inquiry with ethical and spiritual reflection (Judijanto & Yusniar, 2025; Siron, 2024; Sholehuddin et al., 2025; Septiana & Fadhilah, 2025; Masùd et al., 2023). For instance, optics projects incorporate Qur'anic verses to link scientific design with concepts such as tawhid and stewardship (Sholehuddin et al., 2025). Storybook- and arts-based design projects similarly address

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environmental challenges while nurturing Islamic character and ethical awareness (Nurahman et al., 2025; Masùd et al., 2023).

Global models embed spirituality and ethics into authentic STEM issues. Ghana's "Soulful Science" integrates sustainability and healthcare case studies through religious lenses (Tawiah et al., 2024). Islamic boarding school STEM R programs connect investigations to daily life and Islamic teachings (Sarwi et al., 2024). Christian-informed modules use biblical case studies to cultivate moral responsibility (Ruban, 2025), while Tri Hita Karana–based curricula link coding and environmental science to harmony and stewardship (Rati et al., 2025).

Despite these innovations, teachers face barriers including limited resources, insufficient preparation, and fear of controversy (Judijanto & Yusniar, 2025; Siron, 2024; Wiyatno et al., 2024; Sumarni et al., 2020). Tensions are especially evident in topics like evolution, where educators seek to respect faith while maintaining scientific integrity but struggle with boundaries and epistemological differences (Sumarni et al., 2020; Stahi-Hitin & Yarden, 2022). Overall, while PBL and real-world ethical framing are increasingly used to integrate spiritual values into STEM, teachers consistently report conceptual, pedagogical, and resource challenges in balancing rigorous science with faith-based frameworks.

Interdisciplinary and Three-Domain Integration (Islamic Values‑ELT‑STEM)

Interdisciplinary and three-domain integration (e.g., cognitive–socio-emotional–behavioral; knowledge–skills–values) is widely promoted to address complex problems and 21st-century competencies, yet its empirical base and classroom enactment remain uneven (Drake & Reid, 2020; Alvero, 2025; Da Silva Mendes, 2025; Yang et al., 2024). Much of the literature is conceptual, with limited large-scale evidence on sustained multi-domain impact. Early analyses note that integration has often relied on local innovation rather than systematic evaluation (Drake&Reid, 2020). Empirical studies typically examine small, context-specific interventions such as interdisciplinary moral–arts modules or play-based nursing courses reporting cognitive, affective, and behavioural gains within limited samples (Leng et al., 2025; Yang et al., 2024). Reviews of embodied learning similarly highlight a fragmented field lacking cumulative, cross-domain knowledge (Hegna & Ørbæk, 2021).

Interdisciplinary pedagogy is inherently complex, requiring teachers to bridge epistemologies, methods, and goals. Reviews of interdisciplinary STEM identify persistent challenges in preparation, design, and assessment, especially when addressing real-world problems across disciplines (Wang et al., 2020; Joseph & Uzondu, 2024). Higher education accounts emphasise "disciplinary distance," tensions between depth and integration, and varied epistemological demands (Kamanga, 2024). Collaborative curriculum design also involves negotiating uncertainty and "fragile knowledge" (Resnick & Kolikant, 2025).

Structural constraints further limit enactment. Inflexible schedules, lack of planning time, and high-stakes discipline-based standards hinder integrated STEM and STEAM implementation (Wang et al., 2020; Joseph & Uzondu, 2024; Hawari & Noor, 2020). Teachers struggle to align interdisciplinary aims with subject-specific curricula and assessments (Wang et al., 2020; Joseph & Uzondu, 2024). Project-based STEAM classrooms face challenges in project selection, multi-domain rubric design, and time allocation (Hawari & Noor, 2020), while integrated assessments increase workload and require institutional support (Yang et al., 2024; Joseph & Uzondu, 2024).

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The literature consistently contrasts aspirations for coherence with fragmented teacher understandings and siloed systems. Ambiguous definitions and weak shared principles have led to diverse but disconnected local models (Drake & Reid, 2020). Despite policy rhetoric, curricular fragmentation persists in schools and teacher education, where interdisciplinary linkage and philosophical grounding remain weak (Wu et al., 2024; Da Silva Mendes, 2025; Yoon, 2025). Teachers' interdisciplinary capacity depends on collaboration, coherent structures, and aligned policy support; without these, integration risks becoming superficial thematic juxtaposition rather than genuinely holistic design (Wu et al., 2024; Drake & Reid, 2020; Da Silva Mendes, 2025; Joseph & Uzondu, 2024).

Professional Development for Integrated Teaching

Professional development (PD) for integrated teaching aims to prepare teachers for interdisciplinary, theory–practice connected, and technology-rich classrooms, yet persistent gaps remain in both pre-service and in-service systems. Pre-service programs often separate content and pedagogy, creating fragmented competence and underemphasizing digital, inquiry-based, and interdisciplinary design, particularly in resource-constrained contexts (Khatamova, 2025; Hao et al., 2025; Ajani & Govender, 2025; Khanh et al., 2025).

In-service PD is frequently short-term and generic, leaving teachers underprepared for digital and cross-curricular integration, with ongoing struggles in content synthesis, inquiry facilitation, and contextual responsiveness (Nazarova, 2025; Amemasor et al., 2025; Napitupulu et al., 2024; Kononets et al., 2025; Wilson et al., 2025; Mesutoglu & Akgündüz, 2025). Clear conceptual frameworks such as interdisciplinary/STEM models, linguodidactic integration, and TPACK are crucial to move teachers from partial to coherent integration (Kononets et al., 2025; Khatamova, 2025; Nazarova, 2025; Khanh et al., 2025; Jurnal et al., 2025).

Effective PD foregrounds problem-/project-based learning, collaborative lesson design, tangible instructional products, and inquiry cycles that build self-efficacy and multi-domain competence (Martínez, 2022; Kononets et al., 2025; Wilson et al., 2025; Hao et al., 2025). Models integrating language–mathematics or indigenous knowledge further highlight content-focused, culturally responsive, epistemologically aware pedagogy (Jiménez-Silva et al., 2025; Bhaw et al., 2025).

Across studies, sustained, reflective, and context-sensitive PD tailored to teacher level, infrastructure, and local realities proves more transformative than one-off workshops, strengthening TPACK and integrated competence through communities of practice and long-term inquiry (Amemasor et al., 2025; Nazarova, 2025; Chen, 2025; Ajani & Govender, 2025; Jurnal et al., 2025; Tobondo, 2025; Jiménez-Silva et al., 2025; Wilson et al., 2025).

Methodology

This study used a qualitative research design to explore teachers' beliefs and classroom practices in depth. A qualitative approach was chosen because it allows for a close look at the experiences and perspectives of teachers, especially in understanding how they integrate Islamic values alongside English language teaching and STEM. Rather than focusing on numbers or scores, this approach gives insight into the "how" and "why" behind teachers' decisions, including the challenges they face and the strategies they use in their classrooms. It

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also makes it possible to capture subtle, context-specific practices that might not be visible through surveys or quantitative measures.

Six teachers were selected using purposive sampling to ensure they could provide rich, relevant insights for this study. The criteria for selection were:

- Teaching English and/or STEM subjects,
- Working in schools where Islamic or values-based education is emphasised, and
- Having at least two years of teaching experience to ensure familiarity with curriculum and classroom practices.

Each participant was given a pseudonym (T1–T6) to protect their identity and allow them to speak freely. This small, focused sample allowed for a detailed exploration of each teacher's perspective while still highlighting patterns across different experiences and subject areas.

Data were collected through semi-structured interviews, each lasting around 45–60 minutes. This method gave teachers the space to share their experiences in their own words while giving the researcher the flexibility to ask follow-up questions and explore interesting points in more depth. The interview questions focused on how teachers understood the integration of Islamic values, English, and STEM, the strategies they used in their teaching, the challenges they faced, and what professional development might help them. All interviews were audio-recorded and transcribed word-for-word to ensure that the teachers' perspectives were captured accurately.

The interview data were analysed using thematic analysis. The process began with carefully reading the transcripts to get a sense of the whole picture. Meaningful segments of text were then highlighted and given initial codes. These codes were grouped into categories, which were later refined into broader themes that reflected recurring patterns in teachers' beliefs, challenges, and strategies. To ensure the findings were trustworthy, another researcher reviewed the coding and theme development, and reflexive notes were kept throughout the analysis to document decisions and interpretations. This careful, step-by-step process helped ensure that the themes accurately represented what the teachers had shared.

Findings

Table 1: Coding Framework for Thematic Analysis

Raw Data Excerpt (Verbatim)	Initial Code	Category	Final Theme
"*In English lessons, my main concern is always language outcomes such as grammar, vocabulary, and communication skills.*" (T4)	Focus on language outcomes	Subject-based instructional priority	Fragmented understanding of three-domain integration
"*Islamic values are usually something I*	Values as moral reminders	Implicit values integration	Fragmented understanding of

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remind students about, but they are not part of my lesson objectives." (T2)			three-domain integration
"*Sometimes English, STEM, and values feel like they are running separately in my lessons."* (T1)	Parallel teaching of domains	Lack of conceptual integration	Fragmented understanding of three-domain integration
"The syllabus is very packed and assessment-driven, so it's hard to integrate values deeply." (T5)	Curriculum and assessment pressure	Structural constraints	Pedagogical tensions and instructional constraints
"There is encouragement to integrate values, but no clear guideline on how to do it or assess it." (T3)	Lack of pedagogical guidance	Policy–practice gap	Pedagogical tensions and instructional constraints
"I try to link STEM topics with amanah and responsibility when discussing technology use." (T3)	Ethical framing of STEM content	Contextualised values integration	Adaptive strategies for meaningful integration
"During group projects, I emphasise adab and teamwork, even in English lessons." (T6)	Values embedded in interaction	Process-oriented integration	Adaptive strategies for meaningful integration
"I may not label it as integration, but values naturally come out during project work." (T2)	Implicit embedded integration	Emergent pedagogical practice	Adaptive strategies for integration

Table 1 presents the coding framework used in thematic analysis, illustrating the analytical progression from raw interview excerpts to initial codes, broader categories, and final themes. The table demonstrates how participants' verbatim responses were systematically interpreted and organised to capture recurring patterns related to teachers' understandings, pedagogical constraints, and adaptive strategies in integrating English, STEM, and Islamic values. This transparent coding structure enhances the rigour and trustworthiness of the analysis by showing the linkage between empirical data and the emergent themes.

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Theme 1: Fragmented Understanding of Three-Domain Interaction

Participants demonstrated a partial and uneven understanding of how English, STEM, and Islamic values should be integrated within instructional practice. While teachers acknowledged the importance of values integration, it was often conceptualised as peripheral to core subject objectives rather than as an embedded pedagogical framework.

Several teachers associated Islamic values primarily with behavioural reminders or moral conduct rather than with lesson design or content integration. One STEM teacher described values integration as limited to classroom ethics, expressing uncertainty about the extent to which values should be embedded within STEM instruction itself (T2). Similarly, English teachers tended to prioritise linguistic outcomes, such as grammar and communication skills, with values addressed implicitly rather than articulated as formal learning objectives (T4).

"For me, integrating Islamic values is more about classroom reminders, like being honest during experiments or respecting others' opinions. But when it comes to STEM content, I'm not always sure how deeply the values should be embedded in the lesson itself." (T2: STEM teacher)

"In English lessons, my main concern is always language outcomes. Grammar, vocabulary, and communication skills. Values are usually addressed implicitly, for example through examples or moral messages, but they are not part of my formal lesson objectives." (T4: English teacher)

Even among teachers involved in integrated curricula, integration was perceived as loosely coordinated rather than systematically planned. One participant noted that English, STEM, and Islamic values often operated in parallel rather than forming a coherent instructional whole (T1). These accounts suggest that while integration is recognised conceptually, it lacks a shared pedagogical structure across subject areas.

"I think we integrate the three areas, but maybe not in a structured way. Sometimes it feels like English, STEM, and Islamic values are running on parallel tracks rather than being truly connected." (T1: Integrated curriculum teacher)

Theme 2: Pedagogical Tensions and Instructional Constraints

Teachers consistently highlighted structural and instructional constraints that limited their ability to integrate values meaningfully. A dominant concern was curriculum density, particularly within STEM subjects, where content-heavy syllabi and practical requirements created time pressures. One teacher expressed concern that integrating values could compromise syllabus completion and assessment preparation (T1).

"The STEM syllabus is very content-heavy, especially when we need to complete experiments and prepare students for assessments. When I try to integrate values, I feel pressured by time and worry that I may not finish the required topics." (T1: STEM teacher)

Assessment practices further reinforced these tensions. Participants reported that examinations prioritised technical knowledge and problem-solving skills, positioning values integration as secondary or optional. As one English teacher noted, despite acknowledging the importance of values, the lack of assessment emphasis reduced their instructional priority (T5).

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"Assessment plays a big role. Since exams focus on technical knowledge and problem-solving, values integration is often seen as something secondary, even though we know it is important." (T5: English teacher)

"Sometimes I feel there is a mismatch between what the curriculum expects us to do and what happens in the classroom. Values integration is encouraged, but there are no clear guidelines on how to assess or plan it." (T3: English–STEM crossover teacher)

Additionally, teachers identified a lack of clear guidance on how values integration should be planned, implemented, or evaluated. While curriculum documents encouraged integration, participants described ambiguity regarding expectations and assessment criteria, resulting in a disconnect between policy intentions and classroom realities (T3). This lack of institutional clarity contributed to uncertainty and inconsistent enactment across classrooms.

Theme 3: Adaptive Pedagogical Strategies for Meaningful Integration

Despite these challenges, teachers demonstrated adaptive and context-sensitive strategies to integrate Islamic values within English and STEM instruction. Rather than relying on explicit labelling, many participants embedded values through reflective questioning, classroom discourse, and collaborative practices.

In STEM contexts, teachers linked topics such as technology and innovation to ethical considerations grounded in Islamic concepts, encouraging students to reflect on responsibility, trust (amanah), and ethical decision-making (T3). English teachers similarly integrated values through communicative practices, emphasising respectful interaction, collaboration, and appropriate conduct (adab) during group work and discussions (T6).

"When teaching topics like technology or innovation, I try to link them with Islamic concepts such as amanah and responsibility. I ask students to reflect on how technology should be used ethically, not just efficiently." (T3: STEM teacher)

"In English project work, I emphasise collaboration and adab during group discussions. Even though it's an English lesson, the way students communicate and respect each other reflects Islamic values." (T6: English teacher)

Some participants described values integration as emerging organically through learning processes, particularly during project-based or collaborative tasks. Teachers highlighted practices such as promoting honesty in reporting results, accountability in teamwork, and respectful peer interaction, even when these were not explicitly framed as integration outcomes (T2). These strategies indicate that, in the absence of formal structures, teachers relied on professional judgement to align pedagogical practices with value-based education.

"I may not label it explicitly as 'integration', but during STEM projects I always remind students about teamwork, honesty in reporting results, and accountability. These values naturally come out through the learning process." (T2: STEM teacher)

Analysis of the interview data revealed three interrelated themes concerning teachers' understanding and enactment of integrating English, STEM, and Islamic values in classroom practice.

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Discussion

The findings suggest that teachers' beliefs strongly influence how the integration of Islamic values, English language teaching, and STEM education is understood and practised in classrooms. While participants generally agreed that values integration is important, many viewed it as something that sits alongside core subject teaching rather than as part of a unified pedagogical approach. English and STEM were often prioritised for their measurable outcomes, such as language proficiency or content mastery, while Islamic values were addressed more informally through reminders or examples. This indicates that integration, although recognised in principle, is not yet grounded in a shared understanding of how values can be meaningfully embedded into lesson design. As a result, teachers experienced the three domains as connected in intention but fragmented in practice.

These beliefs were further shaped by practical and structural constraints within the teaching context. Participants described heavy syllabi, limited instructional time, and assessment demands particularly in STEM as significant barriers to deeper integration. Because assessments tend to focus on technical knowledge and language accuracy, values integration was often perceived as secondary and difficult to justify within limited classroom time. In addition, teachers highlighted a lack of clear guidance on how values integration should be planned or assessed, creating uncertainty about expectations. This gap between curricular aspirations and classroom realities helps explain why teachers often relied on individual interpretation rather than systematic planning when attempting to integrate Islamic values.

Despite these challenges, the findings also point to teachers' capacity to adapt and exercise professional judgement. Many participants described integrating values in subtle but meaningful ways, especially through group work, project-based learning, and classroom interaction. Practices such as emphasising respectful communication, ethical responsibility, honesty in reporting work, and collaboration allowed Islamic values to emerge naturally within English and STEM lessons. Rather than being explicitly labelled, values were woven into the learning process itself. These practices suggest that meaningful integration is already happening at the pedagogical level, even if it is not formally recognised. Providing clearer frameworks and assessment support could help teachers build on these existing practices and move towards more intentional and sustainable integration across the three domains.

Conclusion

This study provides qualitative insights into teachers' beliefs and practices in integrating Islamic values, English, and STEM education. While teachers demonstrate strong commitment to holistic education, meaningful integration requires sustained conceptual and pedagogical support. Addressing this need is vital for advancing teacher professional development and realising the goals of values-driven education.

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