

From Ratio to Relationship: Rethinking Faculty-Student Capacity, Academic Interaction, and Learning Quality in ASEAN Universities in the QS WUR 2027 Context

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ABSTRACT

Faculty-student ratio is widely used as an indicator of educational resources and learning experience, yet the extent to which a favourable ratio translates into better educational quality remains conceptually and empirically contested. Using the QS World University Rankings 2027 context as an empirical point of departure, this qualitative literature review examines how faculty capacity is converted into meaningful educational relationships and student outcomes. Particular attention is given to ASEAN universities and to IPB University, which is reported in the source infographic as seventh in ASEAN for the faculty-student-ratio indicator despite a markedly different position in the overall world ranking. Drawing on more than 50 peer-reviewed journal articles published since 2020, the review identifies seven interrelated themes: faculty-student ratio as institutional capacity rather than educational quality itself; the mediating role of actual class size; faculty accessibility and relationship quality; student engagement and belonging; faculty workload and institutional governance; digital and hybrid learning; and the limitations of ranking indicators as representations of multidimensional university quality. The article proposes a Faculty Capacity-Interaction-Engagement-Outcomes (FCIEO) framework in which structural capacity affects educational outcomes through operational and relational conversion mechanisms moderated by discipline, student characteristics, teaching modality and institutional governance

INTRODUCTION

Higher education has undergone sustained massification as participation has expanded across countries, social groups and institutional types. Growth has widened access to advanced knowledge and professional opportunities, but it has also intensified questions concerning whether institutional resources, particularly academic staff, have expanded at a pace sufficient to preserve the quality of students' learning experiences. Cross-national evidence indicates that student-faculty ratios have tended to rise as higher education systems expand, although the extent of the increase differs significantly among countries and is conditioned by public investment, institutional missions and academic labour arrangements (Buckner and Zhang, 2021). Consequently, faculty-student ratio has become an intuitively attractive indicator: all else being equal, more academic staff relative to students would appear to create greater capacity for interaction, feedback, supervision and personalised learning.

The apparent simplicity of this logic, however, conceals substantial conceptual difficulties. An institutional faculty-student ratio is not equivalent to the number of students attending a particular lecture, laboratory or tutorial; neither measure directly represents the quality of teaching. Empirical evidence on class size itself remains heterogeneous. Ake-Little, von der Embse and Dawson (2020) found that class-size effects varied according to discipline and student characteristics, while Kara, Tonin and Vlassopoulos (2021) identified stronger adverse associations between larger classes and academic performance in STEM than in non-STEM fields and found heterogeneous effects across student groups. Other research demonstrates that classroom engagement and teacher interaction may matter at least as much as numerical class size (Wang and Calvano, 2022). Thus, an apparently favourable staffing configuration represents an educational opportunity rather than proof that this opportunity has been realised.

The distinction has become especially relevant because faculty-student ratio is incorporated into prominent global university rankings. In the current QS World University Rankings methodology, the Faculty Student Ratio constitutes the Learning Experience indicator and carries a weight of 10% in the overall ranking (QS, 2026b). This weighting itself demonstrates why performance on the ratio indicator cannot be interpreted as equivalent to overall university performance, because universities are evaluated across research, reputation, employability, internationalisation, sustainability and other dimensions.

The QS World University Rankings 2027, published on 18 June 2026, offer a timely empirical context for examining this issue (QS, 2026a). The infographic that motivated the present review reports that IPB University achieved a faculty-student-ratio score of 86.5, placing it seventh among the displayed ASEAN universities and 126th globally on that indicator, while its overall QS WUR 2027 position is =419. QS independently confirms IPB University's overall 2027 position at =419 and reports 24,668 students and 3,980 faculty staff (QS, 2026c). In contrast, the source infographic places Nanyang Technological University below IPB on the specific faculty-student-ratio indicator, while QS places NTU 12th globally overall in 2027 (QS, 2026d).

This contrast should not be interpreted as evidence that one institution offers a superior or inferior learning environment on the basis of a single indicator. Instead, it illustrates the analytical distinction between indicator-level strength and multidimensional institutional performance. Research on university rankings repeatedly demonstrates that ranking positions are products of choices concerning constructs, indicators, weighting and data aggregation. Selten et al. (2020), for example, found that major international rankings largely capture dimensions related to reputation and research, while Belenkuyu and Karadag (2023) identified continuing methodological and transparency concerns when global rankings are assessed against the Berlin Principles. Rankings can therefore provide useful comparative signals while remaining imperfect representations of the multiple purposes and qualities of universities.

Rankings also influence institutional behaviour. Universities may integrate ranking objectives into strategic plans, allocate resources toward highly weighted measures and benchmark performance against international competitors (Anafinova, 2020; Dowsett, 2020). This can be beneficial when external benchmarks expose genuine weaknesses, but it can become problematic when the indicator becomes the target rather than a diagnostic signal. The broader literature describes how rankings have become institutionalised within higher education governance and public narratives of excellence despite persistent methodological criticism (Wilbers and Brankovic, 2023; Brankovic, Hamann and Ringel, 2023; Hamann and Ringel, 2023). Komotar (2020) similarly warns against treating ranking measures as straightforward equivalents of educational quality.

The key intellectual issue is consequently not whether a better faculty-student ratio is desirable. Adequate academic staffing clearly matters because scarce faculty time constrains opportunities for consultation, assessment, mentoring and educational development. The more consequential question is how additional faculty capacity is converted into learning value. A university may have favourable aggregate staffing while maintaining very large first-year classes, concentrating academic staff in research roles, assigning substantial administrative responsibilities, or failing to build practices that make faculty accessible to students. Conversely, well-designed pedagogies, active-learning practices and digital support can partially mitigate some disadvantages associated with larger classes (Carlos et al., 2023; Gibbs et al., 2023).

Recent scholarship on student-faculty relationships provides a mechanism for resolving the apparent contradiction. Students' experiences of faculty members involve approachability, trust, responsiveness, care and intellectual support rather than simply the number of academic employees on a payroll (Guzzardo et al., 2021; Snijders et al., 2022; Hagenauer, Muehlbacher and Ivanova, 2023). Mattanah et al. (2024), using data from 966 undergraduates, found faculty-student rapport positively associated with engagement and deep approaches to learning, with engagement mediating part of the relationship between rapport and learning approach. This suggests that the educational return to staffing capacity is generated through relational and pedagogical processes.

Accordingly, this article addresses six questions. First, how should faculty–student ratio be conceptualised as an indicator of educational quality? Second, through what mechanisms can greater faculty availability influence interaction, engagement, belonging and learning? Third, under what contextual conditions are such effects strengthened or weakened? Fourth, can faculty–student ratio serve as a valid standalone proxy for learning quality? Fifth, what can the ASEAN pattern highlighted in the source infographic, particularly IPB University's position, tell us about the difference between indicator performance and multidimensional university performance? Sixth, what institutional strategies can convert staffing capacity into substantive educational value?

The article contributes by integrating bodies of literature that are frequently considered separately: staffing and class-size research, faculty–student relationship research, student engagement and belonging, online learning, quality assurance and university rankings. Its principal conceptual contribution is the Faculty Capacity–Interaction–Engagement–Outcomes (FCIEO) framework, which conceptualises faculty–student ratio as an upstream structural resource whose educational effect depends upon successive conversion processes.

LITERATURE REVIEW

1. Faculty–Student Ratio as Structural Educational Capacity

Faculty–student ratio can be understood as an institutional measure of academic human-resource density. At system level, Buckner and Zhang (2021) show that massification places pressure on such ratios because student enrolment may expand faster than faculty employment. The ratio therefore contains genuine information about resource capacity. In principle, institutions with greater faculty resources per student can allocate more time to instruction, feedback, supervision, advising and research mentoring.

However, ratios must be interpreted cautiously because both numerator and denominator can conceal heterogeneity. Universities differ in whether academic employees are counted using headcount or full-time equivalents, whether research-only staff are incorporated, how affiliated faculty are treated and how student loads are calculated. More importantly, an institution-wide ratio averages across faculties, degree levels, disciplines and courses. A university can therefore have an attractive aggregate ratio while students in high-enrolment programmes continue to experience large lectures and limited direct faculty contact.

Research on class size illustrates why this distinction matters. Ake-Little et al. (2020) found that the association between class size and grades varied considerably across disciplinary and demographic groups. Kara, Tonin and Vlassopoulos (2021), analysing approximately 190,000 observations in a UK institution, reported more negative effects of larger classes in STEM than non-STEM subjects and particularly important benefits of smaller classes for students from lower socioeconomic backgrounds. Wang and Calvano (2022), meanwhile, highlight the importance of interaction and involvement, finding that students perceive less instructor interaction and satisfaction in larger classes even when academic performance effects are not uniform.

Evidence from online education further complicates simple assumptions. Gibbs et al. (2023) found little substantive relationship between online section size and final grades in their dataset of 6,615 undergraduate students, illustrating that instructional design and mode of delivery may alter how capacity constraints operate. Large classes can also be organised around pedagogies that preserve active participation. Carlos et al. (2023), for example, describe how team-based and spaced-learning approaches were used to support engagement within a large university biochemistry class. Cooperative-learning interventions in large university language classes have similarly produced improvements in behavioural, cognitive and emotional engagement (Panhwar and Bell, 2023).

The emerging conclusion is that faculty–student ratio, actual class size and pedagogical density are related but distinct phenomena. A favourable ratio can make smaller learning groups feasible, yet institutional scheduling and programme architecture determine whether that possibility is realised. Conversely, larger classes do not inevitably produce poor learning when instructors employ appropriate teaching designs, although such practices themselves require expertise, preparation time and supporting resources. Experiences during pandemic-era large and online classes further underscore that technology does not remove the need for carefully structured communication and support (Vu, Nguyen and Tieu, 2023).

2. Faculty Workload as the Conversion Constraint

A second conceptual problem is that faculty headcount does not equal faculty availability. Academic work combines teaching, research, publication, supervision, administrative duties, professional service and, increasingly, external engagement. Mushabe, Abreh and Mills (2022) argue that workload should be treated as an important higher-education management variable because workload allocation shapes motivation as well as performance. An institution may therefore improve its aggregate faculty–student ratio without increasing the amount of staff time accessible to students if additional faculty effort is absorbed by research targets or administrative demands.

This has direct implications for academic mentoring and advising. Davis et al. (2020) found that institutional support influences faculty participation in undergraduate research mentoring, while a recent review of academic advising research emphasises sustained and personalised relationships as a core mechanism for supporting student success (Hutson and He, 2024). Conceptual work on personal-tutor mentoring likewise argues that intentionally structured advising can strengthen academic interaction, motivation and belonging when it functions as a relational practice rather than a purely administrative transaction (Osman and Vaidya, 2025). Mentoring is not costless: it requires time, repeated contact, intellectual attention and organisational recognition. Universities seeking educational value from favourable staffing levels consequently need workload models that recognise advising, feedback, supervision and mentoring rather than treating these activities as invisible additions to formal teaching.

The same principle applies digitally. Tinoco-Giraldo, Torrecilla Sánchez and García-Peñalvo (2020) show that e-mentoring can expand student access to academic guidance, but successful implementation depends on programme structure, communication design and mentor capacity. Technology can make contact more flexible; it cannot manufacture scarce faculty attention.

3. From Faculty Availability to Relationship Quality

The strongest recent evidence suggests that the meaningful educational variable is not mere physical proximity between students and academics but the quality and purpose of interaction. Choi and Kim (2021) show that barriers can prevent students from interacting with faculty even outside the formal curriculum, indicating that institutional culture and students' perceptions of approachability matter. Ramklass and Vithal (2022) similarly demonstrate the significance of student-faculty interaction within professional education curricula.

Qualitative evidence helps specify the characteristics of productive relationships. Guzzardo et al. (2021) identify practices such as creating supportive pedagogical space, being inclusive, engaging students and demonstrating care beyond narrow classroom transactions. Snijders et al. (2022) find that students' positive and negative critical incidents frequently concern trust, timely responses, attention and perceived benevolence. Hagenauer, Muehlbacher and Ivanova (2023), examining teachers' perspectives, distinguish professional and interpersonal dimensions of teacher-student relationships and identify approachability, care, support and trust as important elements. These findings clarify why simply hiring additional academics cannot guarantee an improved student experience. Capacity must first become **accessibility**, and accessibility must become **educationally meaningful interaction**. Structured academic advising, accessible consultation, research participation, personalised feedback and responsive communication are examples of institutional mechanisms that perform this conversion.

Interaction itself is multidimensional. Overton and Sriram (2024) identify social, academic and deeper life interactions in faculty-in-residence programmes, demonstrating that student-faculty engagement can extend beyond formal instructional contact. Parker, Trolan and Stolzenberg (2022) furthermore show that faculty interaction can relate positively to academic self-concept and that patterns may differ across demographic groups. This points toward an equity dimension: the same opportunity for faculty contact may not be equally accessible, interpreted or beneficial for all students.

4. Engagement as the Educational Conversion Mechanism

Student engagement provides a useful theoretical bridge between faculty interaction and learning outcomes. Engagement includes behavioural participation, cognitive investment, emotional involvement and broader connection with the academic environment. Trowler et al. (2022) emphasise its dynamic and context-dependent character, arguing that engagement arises through interactions between students and their educational environment. Siddiqi et al. (2022) similarly demonstrate that engagement reflects multiple institutional and social dimensions rather than a single behavioural measure.

The rapid expansion of educational technology has made this multidimensional perspective increasingly important. Bond et al. (2020), mapping research on technology and engagement in higher education, show that digital environments shape a broad range of behavioural, affective and cognitive forms of participation. Ferrer et al. (2022) find that student attitudes toward online learning influence motivation and engagement, suggesting that technology works through psychological and pedagogical conditions rather than automatically improving participation.

Faculty relationships are important within this process. Mattanah et al. (2024) provide direct evidence that engagement mediates the association between faculty rapport and deeper learning approaches. Almusharraf (2022) likewise demonstrates the potential value of deliberate rapport-building in online university classrooms, while Miao and Ma (2022) find that online interaction affects learning engagement in part through social presence. More recent scholarship on belonging also argues that classroom relationships, advising structures and institutional policies operate together across multiple ecological levels rather than as isolated interpersonal experiences (Johnson, 2026). These findings make the relational pathway central to understanding how structural staffing capacity can influence learning.

These findings support a process interpretation in which faculty capacity creates opportunities for contact, high-quality interaction strengthens student engagement, and engagement contributes to learning behaviour and outcomes. In compact form, the pathway is Faculty capacity → opportunities for contact → high-quality interaction → student engagement → learning behaviour and outcomes. This sequence should not be interpreted deterministically, because each transition depends on institutional and individual conditions; instead, it provides a more plausible account of how staffing can matter than the assumption that a numerical ratio directly produces learning.

5. Belonging, Inclusion and Educational Equity

A closely related mechanism is sense of belonging. Pedler, Willis and Nieuwoudt (2022) report relationships between university belonging, motivation, enjoyment and retention-related attitudes. Kirby and Thomas (2022) show that high-impact teaching practices can foster classroom belonging, while repeated positive faculty interactions contribute to students feeling connected to their learning environment.

Recent scholarship warns, however, against conceptualising belonging as a uniform student experience. Dost and Mazzoli Smith's (2023) meta-ethnographic synthesis presents belonging as multidimensional, involving social capital, inclusion, exclusion, identity and connections both on and beyond campus. Dias-Broens, Meeuwisse and Severiens (2024) identify substantial variation in how belonging is defined and measured across higher-education research, while a critical review by Gilani and Thomas (2025) finds that personalised staff support and experiential pedagogies are among the practices most consistently associated with stronger belonging. Fernández, Ryan and Begeny (2023) further show that students' socioeconomic and gender-related experiences influence how they understand belonging.

Bettencourt (2021) similarly demonstrates that working-class students may create their own spaces of connectedness when wider university culture does not generate belonging. Cross-national and recent quantitative evidence reinforces the importance of the construct: Lee, Brooks and Abrahams (2024) show that community and belonging are shaped by national institutional cultures, while van Kessel et al. (2025) report positive associations between university belonging and both academic outcomes and student well-being. Daniilidou, Nerantzaki and Stavropoulou (2025) likewise link stronger belonging to greater happiness and resilience, although their results underline that engagement and well-being pathways can vary across samples. Faculty capacity therefore becomes particularly valuable when it is used to create inclusive relational support for students who might otherwise remain academically or socially peripheral.

6. Digital and Hybrid Learning

The pandemic accelerated digital transformation but also showed why numerical staffing measures alone cannot capture learning experience. Farrell and Brunton (2020) describe online engagement as a balancing process shaped by students' life circumstances, learning environments and institutional support. Händel et al. (2022) found that visual and verbal engagement in synchronous online classes are distinct, illustrating the limitations of simple behavioural proxies such as webcam use. Producers, Travis and Pownall (2023) demonstrate that students can struggle to experience learning community when they have limited opportunities to meet and interact, further underscoring the relational dimension of digital education.

The Indonesian experience reinforces these lessons. Cahyadi et al. (2021), drawing on data from Indonesian universities, identified multiple quality dimensions that matter for emergency remote teaching. Kristiana et al. (2023) examined online engagement in Indonesian higher education, highlighting how technology-mediated learning requires intentional strategies to support engagement. Setiamurti et al. (2023) found that academic self-efficacy, intrinsic motivation, self-regulated learning and perceived creativity-fostering teacher behaviour were related to engagement among Indonesian psychology undergraduates studying statistics online. Darawong and Widayati (2022), comparing Thai and Indonesian students, found that online course service quality dimensions affected satisfaction and learning outcomes differently across the two national contexts.

These studies indicate that digitalisation changes the mechanism through which faculty capacity is deployed, but it does not make faculty capacity irrelevant. Online consultations, rapid asynchronous feedback, digital mentoring and scalable active learning can improve access, while poorly designed online systems can increase perceived distance even where staffing ratios appear favourable.

7. University Quality, Ranking and Metric Governance

University quality is multidimensional, which makes any single metric necessarily incomplete. Lee and Johnes (2022) argue for performance evaluation approaches that recognise multiple stages and outputs within higher education rather than relying on a single measure. Kanwar and Sanjeeva (2022) emphasise student satisfaction as one source of evidence for quality improvement, while Chen (2023) demonstrates why student evaluations themselves require careful interpretation and should not be assumed automatically to drive teaching improvement.

Su (2024) examines the datafication of teaching quality and shows how policy metrics can shape universities' own definitions and practices surrounding teaching excellence. This is particularly relevant to global rankings, because indicator systems simplify complex institutional realities into comparable quantitative signals. Selten et al. (2020) show that major university rankings are stable but differ in their underlying measurement emphases, while Meho (2020) demonstrates how adding or reweighting a variable can alter ranking outcomes. Recent cross-national analysis using QS ranking data further confirms that ranking performance reflects multiple institutional and country-level conditions rather than a single educational input (Brito-Ferraz et al., 2026). League-table position is therefore partly a function of methodological architecture and should not be treated as a direct proxy for student learning.

Rankings can nevertheless influence institutional strategy strongly. Anafinova (2020) shows how ranking criteria can become embedded in university and policy priorities. Dowsett (2020) documents how rankings entered strategic planning within Australian universities. Brankovic, Hamann and Ringel (2023), Wilbers and Brankovic (2023), and Hamann and Ringel (2023) place such developments within the broader institutionalisation of rankings.

For ASEAN institutions, this means that a strong faculty-student-ratio score is meaningful but should be interpreted as evidence concerning one dimension of capacity, not as a definitive statement about overall university quality. Malaysia's internationalisation experience further demonstrates how national systems actively position themselves within transnational higher-education processes (Munusamy and Hashim, 2021). International benchmarking therefore needs to remain connected to substantive educational purposes.

METHODOLOGY

This study adopts a **qualitative literature review (QLR)** rather than a systematic literature review or meta-analysis. The purpose is interpretive synthesis: to integrate theoretically related but methodologically heterogeneous literatures into an explanatory account of how faculty capacity may be converted into educational quality. A QLR is particularly appropriate because the focal concepts—faculty–student ratio, class size, interaction, rapport, engagement, belonging, teaching quality and ranking performance—are operationalised differently across research traditions and cannot be meaningfully reduced to a common effect-size framework.

The literature identification process focused principally on peer-reviewed research published from 2020 to September 2026. Searches were conceptually organised around combinations of terms including faculty-student ratio, student-faculty ratio, class size, higher education, student-faculty interaction, teacher-student relationship, faculty-student rapport, student engagement, sense of belonging, faculty workload, mentoring, online higher education, teaching quality, university ranking, ASEAN and Indonesia. Research from Higher Education, Studies in Higher Education, Economics of Education Review, Higher Education Research & Development, Educational Research Review, International Journal of Educational Technology in Higher Education, Current Psychology and other peer-reviewed outlets was incorporated.

Selection was purposive rather than exhaustive. Articles were retained when they made one or more of five contributions: they directly examined faculty or class-size capacity; explained faculty–student relational mechanisms; addressed engagement, belonging or learning outcomes; analysed technology-mediated higher education; or contributed to understanding quality metrics and university rankings. Studies were also deliberately selected from different national contexts and disciplinary settings to avoid treating evidence from one higher-education system as universally representative.

The review followed an iterative thematic procedure. First-cycle coding grouped findings into structural inputs, operational arrangements, relational processes, student processes, outcomes and contextual moderators. Second-cycle coding examined connections among those categories. Particular attention was given to contradictory evidence. For example, studies reporting adverse class-size effects were analysed alongside studies finding small or context-dependent associations rather than being interpreted as competing evidence that required a single universal verdict.

The review also incorporated the supplied ASEAN faculty–student-ratio infographic as an illustrative empirical input. Because an infographic is not a causal dataset, the ranking values were not used to estimate relationships between ratio scores and educational quality. Rather, the displayed contrast between indicator rankings and overall QS positions was used to motivate a conceptual question. Current overall QS positions and the QS methodology were cross-checked against primary QS sources: IPB University is #419 and NTU Singapore is 12th overall in the 2027 ranking, while the current methodology

assigns 10% to the Faculty Student Ratio indicator (QS, 2026b; QS, 2026c; QS, 2026d).

Trustworthiness was strengthened through triangulation across quantitative, qualitative, conceptual and review studies. Evidence was treated as mechanism-supporting rather than as proof of universal causality, especially where studies were cross-sectional or institution-specific. The approach deliberately avoids a PRISMA diagram because the study does not claim systematic-review completeness. Instead, conceptual saturation was sought: additional literature was incorporated until the main explanatory relationships – capacity, conversion, interaction, engagement and outcomes – were sufficiently represented.

RESULTS

1. Theme One: Faculty–Student Ratio Represents Educational Capacity, Not Educational Quality Itself

The clearest finding from the literature is the need to separate educational resources from educational outcomes. Faculty–student ratio captures an important dimension of institutional capacity because universities with greater staffing resources potentially have more academic time available for smaller teaching groups, supervision, consultation and feedback. Yet it does not indicate how staff are distributed across programmes, whether faculty are available to students, or what students actually experience.

This distinction is particularly apparent in massified systems. Buckner and Zhang (2021) found rising national student–faculty ratios associated with expanding tertiary enrolment, demonstrating a genuine resource challenge. Nevertheless, the educational consequences of resource pressure depend on subsequent institutional decisions. Universities can respond by enlarging classes, increasing reliance on technology, differentiating teaching roles, employing tutors, altering assessment design or redistributing workload.

The synthesis yields a fundamental interpretive principle: a favourable ratio increases the feasible set of high-quality educational practices, but it does not ensure that any particular practice occurs. This principle shifts attention from staffing capacity alone to the institutional processes that convert capacity into student-facing educational value.

The ASEAN data in the source infographic provide a useful illustration. Institutions with very strong scores on the faculty–student-ratio indicator occupy substantially different positions in the overall QS WUR 2027. This pattern is consistent with the fact that QS assigns the ratio only part of the overall ranking architecture and measures other dimensions separately (QS, 2026b).

The contrast is visualised in Figure 1, which compares the indicator-level pattern with the institutions' broader ranking positions. The figure should not be read as showing that overall rankings measure teaching quality more accurately than faculty–student ratio; rather, it demonstrates the narrower point that indicator-level success and composite-ranking performance are analytically different constructs. The divergence is precisely why the educational meaning of an FSR score requires investigation beyond league-table position.



Figure 1. Indicator-Level Strength versus Multidimensional University Position
Source: Author's conceptual reconstruction from the source infographic and QS WUR 2027 methodology; IPB and NTU overall positions cross-checked against QS (2026b, 2026c, 2026d). For visual placement only, QS ranking bands such as 701–710 are plotted at their approximate midpoint; the published ranking band remains the reported value

Figure 1 therefore reveals an **indicator–outcome interpretation gap**. An institution can possess favourable structural capacity without achieving equivalent strength across research visibility, employer reputation, citations, international engagement or other dimensions. Conversely, a globally highly ranked institution can have a less favourable position on one input metric while maintaining strong performance elsewhere. This is not contradictory; it is an expected property of multidimensional composite measures.

2.Theme Two: Actual Class Size is a Critical Conversion Variable

The second theme concerns what happens between institutional staffing and the classroom. Class size is one of the most important conversion variables because it determines how much of an aggregate staffing advantage reaches particular learning environments.

Recent evidence rejects the idea of a universal class-size effect. Ake-Little et al. (2020) report substantial variation by student and disciplinary characteristics, and Kara, Tonin and Vlassopoulos (2021) find larger negative associations in STEM courses than non-STEM fields. Such heterogeneity is plausible because teaching requirements differ. A laboratory, clinical practicum, design studio or field exercise may require intensive supervision, whereas some

lecture content can be delivered efficiently to larger groups when accompanied by smaller tutorials or digital support.

Large classes can also be pedagogically reorganised. Carlos et al. (2023) demonstrate the potential of team-based and spaced learning, while Panhwar and Bell (2023) show how cooperative learning can increase engagement in large language classes. Poort, Jansen and Hofman (2023) similarly emphasise motivational conditions influencing engagement in group work. Large classes are therefore not inherently low quality, but they place greater demands on design, facilitation and supporting systems.

Online education reinforces this conclusion. Gibbs et al. (2023) found little substantive relationship between online section size and grades, suggesting that scalable digital course structures may alter the conventional size–performance relationship. Yet the absence of a strong grade effect does not imply that interaction quality, satisfaction or feedback capacity are unaffected. Wang and Calvano (2022) found students perceived lower teacher interaction and satisfaction in larger classes. Accordingly, institutions need outcome measures broader than grades when assessing whether a favourable staffing ratio is being converted into educational benefit.

3. Theme Three: Relationship Quality is the Central Relational Mechanism

The third and arguably most important theme is that educational quality depends on what faculty do with the interaction opportunities that capacity makes possible. Students repeatedly identify responsiveness, approachability, respect, trust, attention and support as defining characteristics of high-quality faculty relationships (Guzzardo et al., 2021; Snijders et al., 2022; Hagenauer, Muehlbacher and Ivanova, 2023).

This evidence shifts the analytic unit from **staff numbers** to **relational capacity**. Two departments can possess identical faculty–student ratios yet create very different educational environments. In one department, academics may provide regular formative feedback, invite consultation, mentor undergraduate research and identify struggling students early. In another, students may rarely interact with academics individually. The structural resource is similar, but the educational conversion rate differs dramatically.

Student–faculty interaction can also extend beyond immediate course performance. Parker, Trolan and Stolzenberg (2022) link faculty interaction to academic self-concept across several student groups. Overton and Sriram (2024) show that meaningful interactions include social and deeper-life dimensions as well as formal academic exchange. Guzzardo et al. (2021) emphasise the particular value of supportive faculty relationships for students confronting financial and personal challenges. Thus, faculty interaction can contribute simultaneously to academic learning, identity formation, institutional attachment and equity.

Research from health-professions education similarly demonstrates that faculty interaction is embedded within curriculum structures and professional socialisation (Ramklass and Vithal, 2022). These findings indicate that relationship quality is not a soft supplement to “real” academic quality. It is one

mechanism through which students access knowledge, feedback, disciplinary identity and opportunities.

4. Theme Four: Engagement and Belonging Convert Relationships into Learning

The fourth theme identifies engagement and belonging as student-level conversion mechanisms. A high-quality interaction does not directly insert knowledge into the learner; it changes the conditions under which the learner participates, persists, asks questions, seeks feedback and invests cognitive effort. Mattanah et al. (2024) provide particularly relevant evidence. Faculty rapport was associated with stronger student engagement, and engagement mediated the relationship between rapport and deep learning. Trowler et al. (2022) conceptualise engagement as a dynamic interface between students and institutional environments, while Ferrer et al. (2022) show how motivation and attitudes shape online engagement. Together, these studies support the view that faculty capacity matters educationally when it alters student participation. Belonging extends this mechanism. Pedler, Willis and Nieuwoudt (2022) connect belonging with motivation, enjoyment and retention-related experiences. Dost and Mazzoli Smith (2023) demonstrate that belonging encompasses multiple dimensions of connection and exclusion. Fernández, Ryan and Begeny (2023) and Bettencourt (2021) further show that students' social identities and socioeconomic experiences affect whether university environments are experienced as inclusive.

These findings introduce an important equity implication. If favourable faculty capacity permits more personalised academic support, its marginal value may be particularly high for students who enter university with fewer informational, social or financial resources. Kara, Tonin and Vlassopoulos (2021) indeed find heterogeneous class-size effects associated with socioeconomic background. A universal ratio target may therefore be less useful than targeted capacity allocation to contexts where additional interaction has the largest educational return.

The synthesis suggests that staffing does not affect learning through a single direct pathway. Figure 2 presents the FCIEO framework developed from the thematic analysis. It depicts structural staffing capacity as an upstream resource whose value depends on operational, relational and student-level conversion processes.



Figure 2. Faculty Capacity-Interaction-Engagement-Outcomes (FCIEO) Framework

Source: Author's synthesis based on the peer-reviewed literature reviewed in this article

Figure 2 clarifies why correlations between institution-level faculty-student ratios and final educational outcomes can be weak or inconsistent. Every intermediate stage introduces variation. Faculty numbers can be diluted by workload structures; favourable class sizes can coexist with poor teaching; accessible academics may fail to build trust; positive relationships may still operate differently across student groups. The framework therefore predicts heterogeneity rather than a universal direct effect.

5. Theme Five: Faculty Workload and Governance Determine the Conversion Rate

The literature repeatedly shows that institutional organisation determines whether structural resources become student-facing capacity. Faculty members cannot simultaneously maximise research production, administrative participation, large-scale teaching, extensive assessment, mentoring and community engagement without trade-offs.

Mushabe, Abreh and Mills (2022) highlight workload as both a motivational and performance-management issue. Davis et al. (2020) demonstrate that institutional support affects willingness to undertake undergraduate mentoring. These findings imply that hiring more faculty without redesigning workload can leave student experiences largely unchanged.

Governance therefore becomes central. Academic units need information not only on aggregate faculty numbers but on how staff time is allocated. Relevant measures include contact hours, number of advisees, assessment burden, response time, undergraduate research supervision, office-hour utilisation, thesis supervision and distribution of teaching across permanent and temporary staff.

This is particularly important when rankings create incentives for research performance. If universities respond to international league tables by directing additional faculty resources primarily toward research output while simultaneously publicising favourable faculty–student ratios as evidence of teaching quality, an internal contradiction can arise. Anafinova (2020), Dowsett (2020) and Brankovic, Hamann and Ringel (2023) demonstrate the extent to which ranking logics can enter institutional strategy. Good governance therefore requires explicit protection of the educational function of staffing.

6. Theme Six: Digitalisation Alters but Does Not Eliminate Relational Capacity

The sixth theme is the changing meaning of faculty capacity in digital and hybrid education. Digital technologies make certain activities scalable. Lectures can be recorded; automated quizzes can provide rapid basic feedback; discussion boards enable asynchronous participation; learning analytics can identify students at risk. These developments could reduce the amount of faculty time needed for routine delivery and create capacity for more valuable interaction.

However, evidence from online learning cautions against assuming that digital scalability automatically produces relational quality. Miao and Ma (2022) find social presence central to the relationship between interaction and engagement. Almusharraf (2022) shows that rapport can be deliberately built online, while Prodggers, Travis and Pownall (2023) illustrate the difficulty of creating community when students have little meaningful contact. Händel et al. (2022) show that visible participation and verbal engagement are not equivalent.

Indonesian evidence likewise demonstrates that engagement during online learning depends on psychological, pedagogical and service-quality factors rather than merely access to a platform (Cahyadi et al., 2021; Kristiana et al., 2023; Setiamurti et al., 2023; Darawong and Widayati, 2022). Digital transformation thus strengthens rather than weakens the argument for multidimensional quality measurement. Related post-pandemic evidence further indicates that student–teacher relationships require deliberate recalibration as digital and blended practices become normalised (Soemantri et al., 2023).

The future implication is not that artificial intelligence or educational technology will make faculty–student ratio obsolete. Instead, technology may change the **composition of faculty work**. Routine information provision can increasingly be automated, potentially freeing academic staff for feedback, mentoring, intellectual dialogue and complex problem solving—the very activities for which human relational capacity is most valuable.

7. Theme Seven: Rankings Measure Indicators, Not the Totality of Educational Quality

The seventh theme concerns interpretation. Rankings are not meaningless, but their indicators must be read according to what they actually measure. QS currently gives Faculty Student Ratio a 10% weight in the overall WUR score (QS, 2026b). Therefore, strong FSR performance is exactly that: strong performance on a particular resource-related indicator, rather than a comprehensive measure of educational quality.

Ranking scholarship supports this cautious interpretation. Selten et al. (2020) find that ranking systems differ and that their component measures can reflect underlying reputation and research dimensions rather than an undifferentiated construct of university excellence. Komotar (2020) questions the relationship between ranking concepts of quality and broader quality-assurance processes. Belenkuyu and Karadag (2023) identify varying compliance of global ranking systems with principles concerning methodology and transparency. Meho (2020) demonstrates that changing indicator composition can affect rank positions.

This does not invalidate rankings. It defines their appropriate use: they are comparative information systems rather than complete theories of educational quality.

The central conceptual error identified in the literature is the tendency to collapse four related constructs into one. Figure 3 separates them so that institutional leaders can diagnose where educational value is gained or lost.



Figure 3. Four Constructs That Should Not Be Treated as Synonyms

Source: Author's synthesis based on the peer-reviewed literature reviewed in this article.

The analytical benefit of Figure 3 is that it changes the management question. Instead of asking whether an institution has reached an “ideal” faculty–student ratio, leaders should ask whether available academic capacity has been converted into manageable learning environments, meaningful student contact and demonstrable educational outcomes.

DISCUSSION

1. RQ1: What Does Faculty–Student Ratio Actually Measure?

The synthesis supports interpreting faculty–student ratio primarily as a **structural input or capacity indicator**. It indicates the potential availability of academic human resources relative to student numbers. This potential matters because teaching, feedback, assessment, advising and mentoring require human time.

Yet the ratio does not directly measure class size, teacher accessibility, pedagogy, interaction, engagement or learning. Buckner and Zhang (2021) establish why ratios are relevant at system level under massification, but class-size research shows that translating ratios into outcomes requires additional variables (Ake-Little et al., 2020; Kara, Tonin and Vlassopoulos, 2021; Wang and Calvano, 2022).

This interpretation resolves a common communication problem. It is reasonable for universities to present a favourable ratio as evidence of **educational capacity**. It is less defensible to treat the same number as proof that students receive superior education unless process and outcome evidence is also available.

2. RQ2: Through What Mechanisms Can Faculty Capacity Improve Learning?

The evidence identifies a layered mechanism. First, adequate staffing allows institutions to design manageable teaching groups and allocate faculty time to student-facing functions. Second, operational arrangements create opportunities for interaction. Third, faculty behaviours determine whether these opportunities produce trust, accessibility, responsiveness and mentoring. Fourth, relational quality influences student motivation, engagement and belonging. Finally, these processes can influence learning, satisfaction, persistence and broader development.

This chain is supported across multiple research traditions. Snijders et al. (2022) identify trust and responsiveness as dimensions of student–faculty relationships. Hagenauer, Muehlbacher and Ivanova (2023) identify approachability, care and support from faculty perspectives. Mattanah et al. (2024) provide evidence for an engagement-mediated relationship between rapport and learning approach. Pedler, Willis and Nieuwoudt (2022), Dost and Mazzoli Smith (2023), and Kirby and Thomas (2022) connect supportive environments with belonging.

The key implication is that the educational productivity of academic staffing is mediated by **relationship-intensive activities**. A university can therefore improve learning without necessarily changing its headline FSR if it increases the proportion of existing faculty capacity devoted to high-value student interaction.

3. RQ3: Why Are the Effects Context-Dependent?

The review identifies five major moderating domains: discipline, student characteristics, delivery mode, workload and institutional governance. These moderators help explain why similar staffing configurations can produce different educational experiences and outcomes across programmes, institutions and student groups.

Discipline affects the production function of learning. Practical, laboratory, clinical and design-based education may require closer supervision than some lecture-based courses. This helps explain the stronger class-size effects observed in STEM contexts by Kara, Tonin and Vlassopoulos (2021).

Student characteristics also matter. Smaller classes and stronger faculty relationships may be especially consequential for students with less prior access to academic cultural capital or informal support. Parker, Trolan and Stolzenberg (2022), Fernández, Ryan and Begeny (2023), and Bettencourt (2021) show how relational and belonging experiences vary across identity and socioeconomic dimensions.

Delivery mode changes what constitutes accessibility. In face-to-face education, physical contact may facilitate informal questions and relationship development. In online education, accessibility may instead depend on response time, social presence, synchronous interaction and clear digital communication (Almusharraf, 2022; Miao and Ma, 2022; Farrell and Brunton, 2020).

Finally, workload and governance determine whether available capacity reaches students. These variables mean that there is no defensible universal rule such as “a particular numerical ratio guarantees quality.” Optimal staffing is conditional on the educational model being delivered.

4. RQ4: Is Faculty–Student Ratio a Sufficient Proxy for Learning Quality?

The evidence indicates that it is insufficient as a standalone proxy. This conclusion does not diminish the ratio's usefulness; it specifies its role. FSR should sit within a broader quality architecture comprising **input, process and outcome indicators**.

Input indicators could include faculty–student ratio, academic qualifications, infrastructure and learning resources. Process indicators should capture actual class size distributions, frequency and quality of interaction, feedback turnaround, advising intensity, mentoring access, active-learning practices and student engagement. Outcome indicators should include learning achievement, retention, progression, graduate capability, satisfaction and, where appropriate, employment outcomes.

The importance of a broader measurement framework is consistent with Lee and Johnes (2022), who illustrate multidimensional performance analysis; Kanwar and Sanjeeva (2022), who emphasise student satisfaction as quality-improvement evidence; and Su (2024), who cautions that institutional conceptions of teaching quality can themselves become shaped by metric systems. A dashboard that combines inputs, processes and outcomes is therefore more defensible than interpreting any single metric as a complete representation of educational quality.

Figure 4 translates the analytical conclusions into an institutional measurement system. Rather than abandoning FSR, the framework nests it within a dashboard that can reveal whether resource advantages are actually being converted into educational value.

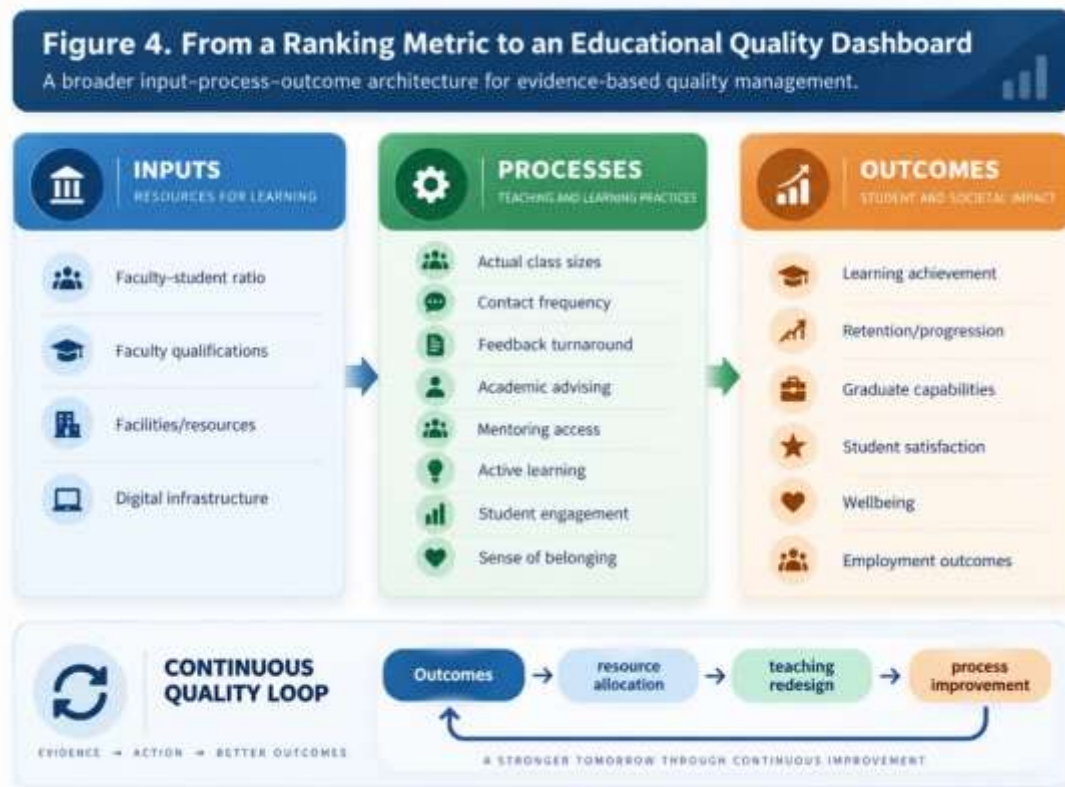


Figure 4. From a Ranking Metric to an Educational Quality Dashboard
Source: Author's synthesis based on the peer-reviewed literature reviewed in this article.

The dashboard approach also reduces the risk of Goodhart-type behaviour, in which institutions optimise an indicator simply because it is measured. If FSR improves while class sizes, feedback delays and student engagement remain unchanged, the dashboard would reveal a conversion failure. Conversely, an institution with a less favourable aggregate FSR could demonstrate effective educational management through strong interaction and outcome indicators.

5. RQ5: What Does the ASEAN Pattern Mean, Particularly for IPB University?

The attached infographic creates a particularly useful case for interpretation. IPB University is reported as seventh among the displayed ASEAN institutions for the faculty-student-ratio indicator, with a score of 86.5 and global indicator position 126. Its overall QS WUR 2027 position is =419, independently confirmed by QS (QS, 2026c).

These numbers should not be framed as contradictory because they describe different dimensions. IPB's FSR position may indicate an institutional resource advantage relative to many universities in the comparison set, whereas its overall rank incorporates additional dimensions. Likewise, NTU Singapore's

overall rank of 12 is consistent with very strong multidimensional performance even though the infographic places it lower than IPB on the specific faculty-student-ratio indicator (QS, 2026d).

The strategically useful question for IPB is therefore not whether the FSR score proves that its learning quality exceeds that of universities below it on the indicator, because such an inference would go beyond the data. The more appropriate question is how IPB can convert the capacity signalled by its favourable FSR indicator into distinctive and measurable student-learning advantages. The literature suggests five complementary strategies for making that conversion visible in educational practice and quality assurance.

First, IPB could complement the headline FSR with programme-level and course-level class-size distributions. An institution-wide average can obscure very large gateway courses or uneven staffing across faculties. Monitoring actual class sizes would identify where staffing capacity is and is not reaching students.

Second, favourable staffing should be translated into a **student-access guarantee**. Departments could monitor availability of academic consultation, advising load, feedback turnaround and undergraduate access to research mentoring. The aim would not be bureaucratic counting but ensuring that institutional resources are visible in student experience.

Third, disciplines should develop context-specific interaction models. Laboratory, field, agricultural, veterinary, engineering and other practice-intensive programmes may derive particular value from smaller supervised groups and research participation. Large foundational courses may instead benefit from structured team-based learning, tutorial systems and digitally supported formative assessment, as suggested by Carlos et al. (2023) and related large-class research.

Fourth, institutions should measure engagement and belonging rather than assuming them. Indonesian studies already provide evidence that engagement is affected by self-efficacy, teacher behaviour, online design and service quality (Kristiana et al., 2023; Setiamurti et al., 2023; Darawong and Widayati, 2022). These dimensions can therefore become explicit components of internal quality assurance.

Fifth, academic workload should reflect educational strategy. A favourable staff ratio can be squandered if mentoring, formative feedback and consultation are treated as unrecognised labour. Allocation models should protect student-facing time and reward high-quality mentoring alongside research production.

Thus, the strategic opportunity represented by a strong FSR score lies in conversion rather than publicity alone. Its educational value becomes more credible when favourable staffing is accompanied by evidence of accessible faculty, manageable learning groups, timely feedback, effective mentoring, engagement and demonstrable student outcomes.

6. RQ6: What Should ASEAN Universities Do?

ASEAN higher education is characterised by considerable institutional diversity. The region includes globally prominent research universities, large public mass systems, specialised institutions and rapidly expanding private universities. Consequently, a single staffing norm would be inappropriate.

A stronger regional agenda would focus on **relational productivity of academic capacity**. This entails asking how effectively each hour of academic time supports teaching, mentoring, feedback, supervision and student development rather than simply asking how many staff members are employed. Internationalisation adds another dimension. Munusamy and Hashim (2021) show how transnational processes shape Malaysian higher education strategy. Universities throughout ASEAN face pressures to improve research visibility, international mobility, graduate employability and ranking performance simultaneously. These objectives need not conflict with teaching quality, but tension can arise when workload systems reward research indicators disproportionately.

The FCIEO framework suggests that ASEAN institutions should protect the conversion pathway. Investments in faculty numbers should be accompanied by pedagogical development, mentoring systems, advising architecture, active-learning support and analytics that identify students needing assistance. Technology should be used to remove low-value administrative and repetitive tasks so faculty time can shift toward higher-value educational interaction. This also suggests a policy implication for quality-assurance agencies. National systems could supplement minimum lecturer–student-ratio requirements with evidence concerning actual learning conditions. Accreditation and institutional evaluation might examine distribution of class sizes, supervision load, timely feedback, student engagement, belonging and progression outcomes. Such a shift would make staffing regulation more closely connected to its educational purpose.

7. Theoretical Contribution: The Ratio-to-Relationship Proposition

The central theoretical synthesis can be expressed as the Ratio-to-Relationship Proposition: faculty–student ratio creates structural capacity, while educational quality emerges only when that capacity is converted through institutional design into accessible, meaningful and inclusive academic relationships that stimulate engagement, belonging and learning. This formulation deliberately separates resource availability from the relational and pedagogical mechanisms through which educational value is produced. This proposition reconciles three apparently inconsistent strands of evidence. First, the resource literature demonstrates that staffing constraints are real. Second, class-size studies show mixed and heterogeneous effects. Third, relational and engagement research consistently identifies interaction quality as important to student experience and learning.

The proposition therefore predicts that the relationship between FSR and educational outcomes will be mediated rather than direct, and that the strength of mediation will differ across institutions. Empirical tests should consequently model class organisation, faculty workload, interaction quality and engagement

as intermediate variables rather than assuming a simple linear relationship between an institutional ratio and student outcomes.

A research agenda follows. Future studies should combine institution-level FSR data with course-level class-size distributions, faculty workload, interaction measures and longitudinal student outcomes. Multilevel designs could test whether FSR influences outcomes through feedback frequency, advising access, faculty rapport and engagement. Cross-ASEAN comparisons would be particularly valuable because institutional structures, financing and academic labour systems differ substantially across the region.

Research should also explore whether AI-assisted assessment and advising change the educational returns to faculty capacity. If routine feedback can be automated responsibly, additional faculty time might be redirected toward complex mentoring and disciplinary dialogue. Alternatively, institutions could use technology primarily to expand enrolment, recreating capacity pressures at a larger scale. The effect of AI on the ratio-relationship conversion pathway is therefore an important emerging research question.

CONCLUSIONS AND RECOMMENDATIONS

This qualitative literature review began with an apparently simple indicator: the number of faculty relative to students. The evidence shows that its educational meaning is considerably more complex.

Faculty-student ratio is substantively useful because academic human resources matter. Under conditions of higher-education massification, inadequate staffing can constrain teaching, feedback, supervision and mentoring. A favourable ratio therefore represents valuable **capacity for quality**. It should not, however, be interpreted as educational quality itself.

Class size, workload allocation and instructional organisation determine whether structural capacity becomes practical availability. Faculty accessibility, rapport, responsiveness, feedback and mentoring then determine whether availability becomes a meaningful academic relationship. Student engagement, self-efficacy and belonging help convert those relationships into learning behaviour and educational outcomes. Discipline, student background, modality, technology and institutional governance moderate each stage of the process. The resulting FCIEO framework – Faculty Capacity → Operational Conversion → Interaction → Engagement/Belonging → Educational Outcomes – provides a more complete interpretation than either staffing ratios or composite rankings alone. It also offers a practical diagnostic sequence for identifying where otherwise favourable institutional resources fail to become meaningful student experiences.

The QS WUR 2027 ASEAN pattern illustrates why this distinction matters. The strong faculty-student-ratio performance reported for IPB University should be interpreted as a potentially important institutional resource advantage, while its overall QS position reflects a broader multidimensional ranking architecture. The appropriate strategic response is therefore neither to dismiss the indicator nor to overstate it, but to use it as a starting point for educational improvement.

For IPB University and other ASEAN institutions, the next frontier is moving from ratio management to relationship management by ensuring that academic staffing creates manageable learning environments, accessible professors, rapid and substantive feedback, mentoring, undergraduate research opportunities, student engagement and inclusive belonging. This transition requires quality-assurance systems to observe not only how many academic staff are available, but also how students actually experience and benefit from that capacity.

University leaders should consequently monitor three categories together: **inputs, educational processes and outcomes**. A lower student burden per faculty member becomes valuable when students actually experience the additional academic capacity. The ultimate question is not simply *How many faculty members are available for how many students?* It is *What educational relationships, learning opportunities and student outcomes does that capacity make possible?*

FURTHER STUDY

This research still has limitations, so further studies on the topic 'From Ratio to Relationship: Rethinking Faculty-Student Capacity, Academic Interaction, and Learning Quality in ASEAN Universities in the QS WUR 2027 Context' are needed to improve this study and provide more insights for the author and readers.

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