Workforce Sustainability And Its Impact On Entrepreneurial Ecosystem Development: Evidence From Educational Institutions In Emerging Asian Economies

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ABSTRACT
This study examines the role of workforce sustainability in shaping entrepreneurial ecosystems and innovation capacity in emerging Asian economies, with a specific focus on the impact of workload and administrative pressures on human capital development within educational institutions. In knowledge-driven economies, education systems serve as foundational pillars of entrepreneurship by developing entrepreneurial competencies, fostering innovation-oriented mindsets, and strengthening the startup pipeline. Teachers, as primary agents of human capital formation, play a critical role in influencing innovation outcomes and long-term economic growth.Using a quantitative cross-sectional design, data were collected from 200 teachers across public and private institutions, and analyzed using correlation and multiple regression techniques. The findings reveal that excessive workload significantly contributes to workforce instability and burnout, which in turn constrains the development of entrepreneurial competencies and reduces the effectiveness of innovation systems. Administrative pressure shows a moderate association but does not independently predict burnout when workload is considered.The study further demonstrates that workforce sustainability is a critical determinant of entrepreneurial ecosystem effectiveness, as it directly influences the development of entrepreneurial competencies, innovation capacity, and startup readiness within emerging Asian economies. These results indicate that unsustainable workforce conditions weaken the quality of human capital, thereby limiting the efficiency of entrepreneurial ecosystems and hindering innovation-driven economic growth.This study contributes to the literature by linking workforce sustainability with entrepreneurship, innovation systems, and ecosystem development in the Asian context. It highlights how institutional inefficiencies within education systems can disrupt the startup pipeline and reduce the capacity of economies to generate innovative and entrepreneurial outcomes. The findings offer important implications for policymakers and institutional leaders seeking to strengthen entrepreneurship and sustainable economic development through improved human capital management. This research contributes to entrepreneurship literature by positioning workforce sustainability as a foundational driver of entrepreneurial ecosystem performance.

Keywords: Entrepreneurial ecosystems; Innovation systems; Workforce sustainability; Human capital development; Startup readiness; Emerging Asian economies

1. Introduction

Innovation-oriented human capital, nurtured in educational institutions, plays a crucial role in entrepreneurial ecosystems in emerging Asian economies. In innovation-based economies, these ecosystems play a vital role in driving economic growth, competitiveness and sustainability. Efficient entrepreneurial ecosystems are heavily reliant on human capital, with capabilities shaped primarily through education, that are creative, skilled and opportunity-focused. In fast-growing Asian economies, schools and universities serve as the critical underpinning institutions for entrepreneurship through the development of critical thinking, creativity and problem-solving skills required for the establishment of startups and the sustainability of economic growth. Teachers, as major knowledge creators and disseminators, are key to developing this human capital (Yao & Abdullah, 2025).

Yet, increasing organisational pressures have led to a deterioration of the teaching profession, with concerns around the long-term sustainability in the educational workforce and its impact on innovation-driven growth and entrepreneurial ecosystem development (Steiner et al., 2025; Saaranen et al., 2015). Teacher burnout, defined by feelings of emotional exhaustion, depersonalisation, and diminished personal accomplishment, is a key concern for both individual and organisational well-being (Avola et al., 2025). This not only affects the quality of teaching and job satisfaction but also hampers teachers' capacity to develop advanced skills and entrepreneurial attitudes in students (Madigan & Kim, 2021; Herman et al., 2018). Consequently, burnout has an indirect impact on the flow of education to entrepreneurial clusters and socio-economic growth (Appiah-Odame & Frempong, 2025).

At the institutional level, burnout is a source of absenteeism, turnover intentions and workforce

instability, and therefore a threat to institutional resilience and sustainability (Roloff et al., 2022; Katsarou et al., 2023). In emerging markets, where education systems are integral to socio-economic change, these effects can ripple through to innovation and entrepreneurship. Efficiency of entrepreneurial ecosystems is dependent not just on financial capital and government policy but also human capital, which is largely developed through education.

The teaching profession has changed significantly in recent years, with an increased workload and administrative pressures. Instructors must juggle various tasks such as curriculum planning, teaching, assessments and extracurricular activities, often under time and resource constraints (Wahab et al., 2024; Jomuad et al., 2021). Moreover, administrative demands such as performance appraisals, policy implementation, reporting and accountability requirements have also created a more intense work environment (El Alaiki et al., 2025; Yean, 2025). These multiple pressures not only lead to heightened stress but also limit the time and resources that can be devoted to innovative teaching and engagement with students, which are crucial for fostering entrepreneurial skills (Katsarou et al., 2023; Saaranen et al., 2015).

From a sustainability viewpoint, workforce well-being is essential for the quality of and continuity in human capital development. As knowledge-based institutions, universities and schools depend on the productivity, engagement and creativity of their teachers (Zhu & Zhai, 2025).High workload and administrative pressures can result in human capital loss, consequently lowering organisational efficiency and the potential of education system to support innovation ecosystem and entrepreneurial development (Steiner et al., 2025; Yao & Abdullah, 2025). Moreover, prolonged job stress can weaken teachers' capacity to motivate and guide their students, thereby impacting the cultivation of entrepreneurial skills and innovation mindset needed for economic development (Madigan & Kim, 2021; Herman et al., 2018).

While preceding research has shown the effects of workload and administrative burden on burnout, there is a lack of research on its consequences in the context of entrepreneurial ecosystem and innovation capacity development, especially in emerging Asian economies. Moreover, previous studies indicate that contextual and organisational factors interplay with individual factors in the form of burnout (Roloff et al., 2022; Francisco et al., 2024). Yet, little is known about how these factors affect the capacity of education systems to foster entrepreneurship, readiness to start a business and innovation-based economic growth.

This study seeks to fill this gap by exploring the effects of the workload and administrative pressure on teacher burnout and placing these factors in a sustainability and entrepreneurship-related framework. Through empirical analysis of these relationships, the study seeks to understand the drivers of burnout and guide institutional practices to sustain employees. In turn, this sheds light on how educational institutions shape not only human capital, organisational performance and practices, but also innovation, entrepreneurial capacity and socio-economic development in the long term.

2. LITERATURE REVIEW

2.1 Human Capital and Entrepreneurial Ecosystem Development

Human capital is undoubtedly a key component in the creation of entrepreneurial ecosystems, innovation potential and sustainable economic growth. Education systems in the emerging economies of Asia play a key role in ensuring high quality human capital through nurturing the knowledge, skills and abilities required in entrepreneurial activities. Teachers play a crucial role in this process, helping to develop creativity, critical thinking and problem-solving skills, which are vital for innovation and entrepreneurship (Yao & Abdullah, 2025; Orines et al., 2023).

The success of entrepreneurial ecosystems is not only determined by funding and institutional policies, but also relies on a steady flow of skilled and innovative talent (Chryssouli & Koutroukis, 2023). Education systems serve as the primary sources of entrepreneurial knowledge that help people recognise opportunities, engage in innovative practices and enhance economic growth (Chryssouli & Koutroukis, 2023). The efficiency of this process is dependent on the quality of teaching and engagement of teachers, which impacts the development of entrepreneurial and innovation skills among students (Madigan & Kim, 2021; Herman et al., 2018).

But issues related to the workforce, including high workload and administrative burdens, can impact the capacity of teachers to fulfil this function. Burnout lowers the quality of teaching and the participation in innovative teaching methods, and restrains mentoring activities, all of which are essential in developing entrepreneurial skills (Wahab et al., 2024; Jomuad et al., 2021). Burnout not only affects individual welfare, but also inhibits the process of human capital formation, thus limiting the contribution of education institutions to entrepreneurial ecosystem building.

In the innovation systems framework, the link between human capital and entrepreneurship is a linear process where education affects skill formation, which affects innovation and entrepreneurship (Collie, Shapka, & Perry, 2015). Prolonged work-related stress and burnout among teachers impairs their capacity to facilitate high-order learning and creativity, which in turn impacts the formation of innovation-focused human capital

(Steiner et al., 2025; Saaranen et al., 2015). This constrains the human capital-entrepreneurship pathway through education.

Moreover, the consequences of burnout - decreased productivity, absenteeism and intentions to leave - can destabilise educational organisations, resulting in inconsistencies in human capital development (Roloff et al., 2022; Katsarou et al., 2023). In emerging markets where education systems are intricately connected to economic development, this can resonate with innovation systems and entrepreneurial ecosystem effectiveness.

So, workforce sustainability in education institutions becomes a key element in the effectiveness of an entrepreneurial ecosystem. Well-being and work demands among teachers are not only critical for enhancing education, but also for supporting the development of entrepreneurial skills, innovation and economic sustainability. This approach underscores the need to consider workforce sustainability in discussions about entrepreneurship and innovation systems in emerging Asian economies.

3. Objective of the study

- To examine the level of workload among school teachers.
- To assess the extent of administrative pressure experienced by teachers.
- To determine the level of burnout among teachers.
- To analyze the relationship between workload, administrative pressure, and teacher burnout.

4. Hypothesis of the study

- H_0: There is no significant relationship between workload and teacher burnout.
  H_1: There is a significant relationship between workload and teacher burnout.
- H_0: There is no significant relationship between administrative pressure and teacher burnout.
  H_1: There is a significant relationship between administrative pressure and teacher burnout.
- H_0: Workload and administrative pressure do not significantly predict teacher burnout.
  H_1: Workload and administrative pressure significantly predict teacher burnout.

5. THEORETICAL FRAMEWORK

This research is based on the synthesis of human capital theory, Job Demands-Resources (JD-R) model and the entrepreneurial ecosystem to understand the impact of workload, institutional pressure and burnout on teachers in a sustainability-focused framework. These frameworks together offer a holistic view of the impact of workforce dynamics in educational institutions on human capital formation, innovation and entrepreneurship in emerging economies in Asia.

Human capital theory highlights that education is a critical driver of the knowledge, skills and abilities needed for economic growth, innovation, and entrepreneurship. Schools are the main vehicles for developing intellectual and creative capabilities and teachers are the major custodians of human capital development (Yao & Abdullah, 2025). Their activities also include nurturing creativity, analytical and problem-solving skills necessary for entrepreneurship and innovation-led growth. Yet the success of this endeavour is contingent on the well-being and performance of teachers, which can be undermined by high job demands and organisational pressures.

The Job Demands-Resources (JD-R) model offers a theoretical framework for explaining the impact of job demands on burnout and sustainability. This theory suggests that excessive job demands, such as workload and administrative pressure, result in stress, emotional exhaustion and diminished workplace effectiveness unless they are accompanied by sufficient institutional resources (Demerouti et al., 2014). Research suggests that workload is a key predictor of burnout, with administrative pressure playing an indirect role in increasing job demands (Nazari et al., 2025; Sha & Chang, 2025). For educational institutions, these factors suggest that managing job demands is critical to sustain the workforce and organisational effectiveness.

Entrepreneurial ecosystems build on this approach to connect educational performance and innovation and economic development processes. The entrepreneurial ecosystems rely on the supply of innovative human capital, which is developed primarily through educational institutions. Educators are particularly important in fostering entrepreneurial skills and attitudes, a focus on innovation, and opportunity recognition in students (Fiorilli et al., 2017; Yin et al., 2017). But burnout can lower teaching quality, restrict participation in innovative teaching practices and mentoring activities, and thus restrict the development of entrepreneurial skills.

Sustainability-wise, the well-being of the teaching workforce in educational institutions is linked to the sustainability and performance of entrepreneurial ecosystems. The manifestations of burnout, which include performance decline, absence and attrition, can impact the sustainability of human capital development and institutional capacity (Roloff et al., 2022; Katsarou et al., 2023). This can cascade through to innovation and entrepreneurial capacity, especially in nascent Asian economies where the education sector is a pivotal element of socio-economic change.

This study brings together these theoretical insights to conceptualise a relationship between

organizational factors and developmental outcomes. Specifically, teacher burnout caused by high workload and bureaucratic pressure affects the workforce retention, the quality of human capital and the capacity of education systems to promote innovation and entrepreneurship. This relationship indicates a causal relationship in a direct relationship between workforce and human capital formation, to innovation systems and entrepreneurial ecosystem performance.

Therefore, the issue of teacher burnout is not only an organizational or psychological issue, but also a strategic element that determines the ability to innovate, entrepreneurial growth and economic sustainability of emerging economies in Asia.

6. RESEARCH METHODOLOGY

6.1 Research Design

In the current research, the use of a quantitative descriptive cross-sectional design is appropriate in the study of how workload and administrative stress can contribute to teacher burnout. The cross-sectional method allows analysis of the relationship among variables at one particular point in time, and therefore, it fits well into studies related to work stress in the workplace setting. Such a design is appropriate for examining workforce matters.

6.2 Research Approach

The study made use of a survey research design to collect data from teachers working in schools. Such a strategy makes possible the collection of systematic responses which are subject to statistical analysis for testing the associations between workload, administration burden and stress. The use of a quantitative research approach strengthens the study through objectivity and reliability of findings.

6.3 Population and Sample

The population of this study includes teachers working in the primary, high and higher secondary schools (public and private) in the country. Simple random sampling method was used to pick a sample of 200 teachers whereby each teacher had equal chance of being selected. This will reduce sampling bias and make the sample representative. The sample size is appropriate to conduct correlation and regression analysis and makes the results representative of the similar educational environments.

6.4 Inclusion and Exclusion Criteria

Inclusion and exclusion criteria were employed to ensure that the research remained pertinent and of quality. The inclusion criteria were that the teachers had to be currently working in schools, had one year of teaching experience, and could participate in the study voluntarily. The teachers who were on extended leave during the data collection period and administrative personnel who were not actively teaching were excluded. These were the criteria that made sure that the study targeted teaching professionals who were active and challenged in the workplace.

6.5 Variables of the Study

The study examines the relationships among workload and administrative pressure (independent variables) and teacher burnout (dependent variable). The variables were selected because they are related to job stress and its impact on the well-being and performance of employees. Examples of organisational demands are workload and administrative pressure and burnout is a psychological state that occurs due to exposure to organisational demands.

6.6 Research Instrument

The research involved the use of a self-reported questionnaire to collect information on the variables of interest. The questionnaire was broken down into four sections, which contained data on the background of the participants and standardized measures of workload, administrative pressure, and teacher burnout. The measurement of teaching load was on the number of hours of teaching, preparation time, marking and non-contact hours, using a five-point Likert scale. The measure of administrative pressure was based on the items of evaluation, policy adherence and reporting. A modified version of the Maslach Burnout Inventory, which measures emotional exhaustion, depersonalization and personal accomplishment, was used to measure teacher burnout. The data is more valid and reliable because of the standardized scales of measuring the variables.

6.7 Data Collection Procedure

Information was gathered within a month period through both online and offline media in order to access more people. Consent of the respective educational institutions was obtained and the students informed about the purpose and the objectives of the study. The answer was voluntary and the respondents were assured of anonymity. Online and offline questionnaires were employed to increase the participation and receive a comprehensive data set to analyze.

6.8 Data Analysis Techniques

The Statistical Package of the Social Sciences (SPSS) version 22.6 was used to analyse the data. The study objectives were met using descriptive and inferential statistics. Descriptive statistics like mean, standard deviation, frequency and percentage were used to describe the demographic profile and

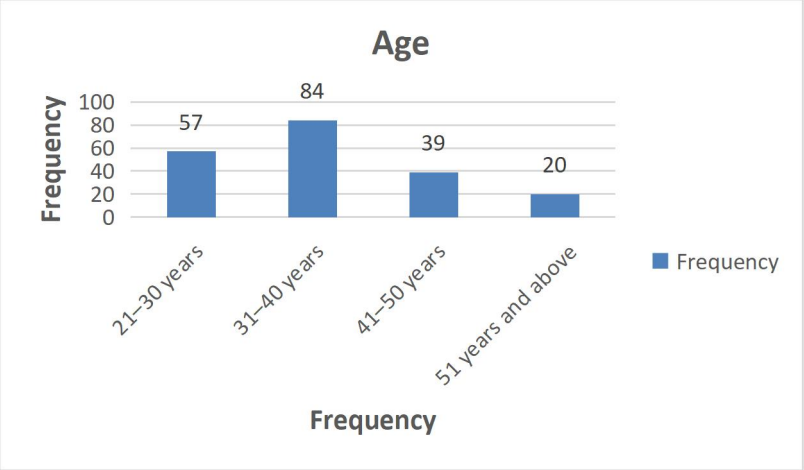
variables of interest. The Pearson correlation analysis was employed to determine the relationship between workload, administrative pressure and teacher burnout. Also, the multiple regression analysis was performed to forecast the impact of the workload and administrative pressure on burnout. Data analyses were conducted at the 5% level of significance ($p < 0.05$), to ensure the validity of the findings.

7. RESULTS

This part of the paper outlines the analysis and findings of the study on 200 teachers looking at the effects of workload and administrative burden on teacher burnout. The results are presented through descriptive statistics, correlation and regression analysis to interpret relationships and draw conclusions.

Table 1.1: Age Distribution of Respondents (N = 200)

Age Group	Frequency	Percentage
21–30 years	57	28.5%
31–40 years	84	42.0%
41–50 years	39	19.5%
51 years and above	20	10.0%
Total	**200**	**100.0%**

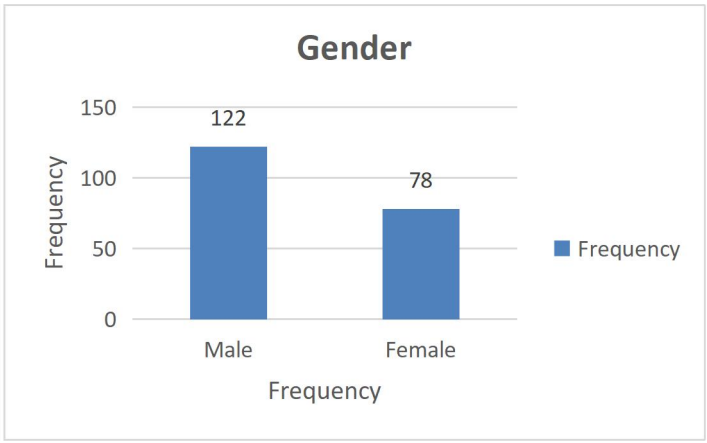


Graph 1.1 Graphical Representation of Age

The age distribution of the respondents demonstrates that the majority of the teachers (42.0%) is in the age group of 31-40 years with 28.5% in the 21-30 years age group. 19.5% of the teachers are in the 41-50 years age group. This suggests that most of the respondents are in middle age which can be associated with higher work responsibilities and potential to experience workload stress.

Table 1.2: Gender Distribution of Respondents (N = 200)

Gender	Frequency	Percentage
Male	122	61.0%
Female	78	39.0%
Total	**200**	**100.0%**

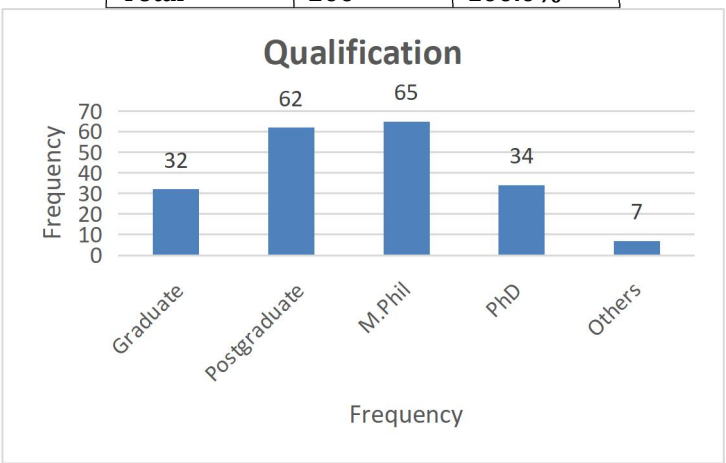


Graph 1.2 Graphical Representation of Gender

The gender distribution is that, 61.0 percent of the respondents are male and 39.0 percent of the respondents are female. This reflects that there is a greater participation of male teachers in the study. The disproportionate distribution though the representation of both the genders implies that the findings can be skewed to a certain extent to be reflective of the male-dominated views of workload, administrative stress and burnout.

Table 1.3: Highest Qualification of Respondents (N = 200)

Qualification	Frequency	Percentage
Graduate	32	16.0%
Postgraduate	62	31.0%
M.Phil	65	32.5%
PhD	34	17.0%
Others	7	3.5%
Total	**200**	**100.0%**

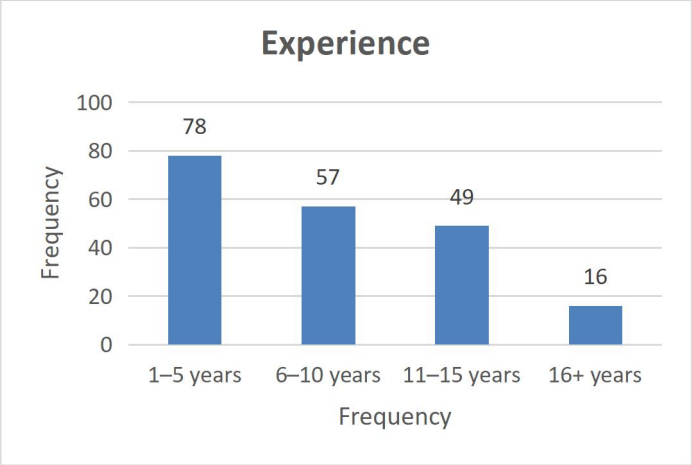


Graph 1.3 Graphical Representation of Qualification

The results reveal that a large proportion of teachers are well-educated, with 32.5% having a M.Phil and 31.0% postgraduates. Further, 17.0% have a PhD, 16.0% are graduates and 3.5% have other qualifications. This suggests that the teachers in the sample are highly qualified, which could impact their understanding of their professional role and their views on administrative burden and burnout.

Table 1.4: Teaching Experience of Respondents (N = 200)

Experience	Frequency	Percentage
1–5 years	78	39.0%
6–10 years	57	28.5%
11–15 years	49	24.5%
16+ years	16	8.0%
Total	**200**	**100.0%**

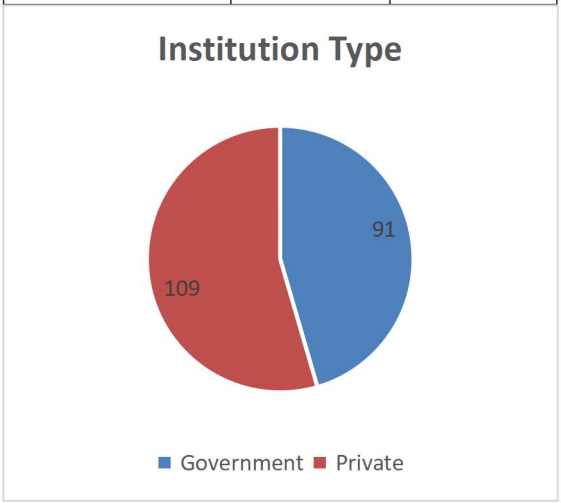


Graph 1.4 Graphical Representation of Experience

In terms of teaching experience, 39.0% of the respondents had 1-5 years of experience, 28.5% had 6-10 years, 24.5% had 11-15 years, and 8.0% had more than 16 years. This suggests a large proportion of the sample are early to mid-career teachers, who may be more at risk of experiencing stress and burnout.

Table 1.5: Type of Institution (N = 200)

Institution Type	Frequency	Percentage
Government	91	45.5%
Private	109	54.5%
Total	**200**	**100.0%**



Graph 1.5 Graphical Representation of Institution Type

The findings show 54.5% of the sample are from private schools and 45.5% from government schools. This reveals slightly more of a presence of private school teachers, who are likely to work under more administrative pressures, expectations and accountability, which may contribute to burnout.

Table 1.6: Descriptive Statistics of Demographic Variables (N = 200)

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	200	1.00	4.00	2.1100	.93395
Gender	200	1.00	2.00	1.3900	.48897
Highest Qualification	200	1.00	5.00	2.6100	1.05521
Teaching Experience	200	1.00	4.00	2.0150	.97958

Type of Institution	200	1.00	2.00	1.5450	.49922
Valid N (listwise)	200				

The descriptive analyses show a reasonable degree of variability in the demographic variables. The average age (M = 2.11) indicates that the participants are mainly middle aged. The mean values for years of teaching experience (M = 2.02) suggest that respondents are mostly in the early to middle years of their teaching careers. The standard deviations indicate a moderate variability in responses, which implies significant diversity in demographic features.

H_0: There is no significant relationship between workload and teacher burnout.
H_1: There is a significant relationship between workload and teacher burnout.

Table 1.7: Correlation between Workload and Teacher Burnout (N = 200)

Correlations			
		Workload Scale	Teacher Burnout Scale
Workload Scale	Pearson Correlation	1	.630**
	Sig. (2-tailed)		.000
	N	200	200
Teacher Burnout Scale	Pearson Correlation	.630**	1
	Sig. (2-tailed)	.000	
	N	200	200
**. Correlation is significant at the 0.01 level (2-tailed).			

According to the Pearson correlation analysis, there is a strong positive association between workload and teacher burnout ($r = 0.630$, $p < 0.01$). This suggests that greater workload is related to greater student burnout. This suggests that workload is a significant predictor of teacher burnout, consistent with the hypothesis that high levels of teaching, marking and extracurricular activities lead to a feeling of emotional exhaustion and low levels of job satisfaction.

Table 1.8: Correlation between Administrative Pressure and Teacher Burnout (N = 200)

H_0: There is no significant relationship between administrative pressure and teacher burnout.
H_1: There is a significant relationship between administrative pressure and teacher burnout.

Correlations			
		Administrative Pressure Scale	Teacher Burnout Scale
Administrative Pressure Scale	Pearson Correlation	1	.395**
	Sig. (2-tailed)		.000
	N	200	200
Teacher Burnout Scale	Pearson Correlation	.395**	1
	Sig. (2-tailed)	.000	
	N	200	200
**. Correlation is significant at the 0.01 level (2-tailed).			

The findings reveal a positive moderate correlation between administrative pressure and teacher burnout ($r = 0.395$, $p < 0.01$). This suggests that as the administrative pressure on teachers increases (for example, through assessments, reports, audits and compliance) they experience higher burnout. While this is less for workload, the pressure from administration is still significant.

Table 1.9: Multiple Regression Analysis Predicting Teacher Burnout

H_0: Workload and administrative pressure do not significantly predict teacher burnout.
H_1: Workload and administrative pressure significantly predict teacher burnout.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.630[a]	.397	.391	4.85805
a. Predictors: (Constant), Administrative Pressure Scale, Workload Scale				

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3061.069	2	1530.534	64.851	.000[b]
	Residual	4649.326	197	23.601		
	Total	7710.395	199			
a. Dependent Variable: Teacher Burnout Scale						
b. Predictors: (Constant), Administrative Pressure Scale, Workload Scale						

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.931	1.385		6.449	.000
	Workload Scale	.587	.066	.629	8.876	.000
	Administrative Pressure Scale	.001	.071	.001	.015	.988
a. Dependent Variable: Teacher Burnout Scale						

The regression analysis was performed to assess the effects of workload and administrative pressure on teacher burnout. The model summary reveals an R^2 of 0.397, meaning that 39.7% of the variability in teacher burnout is account for by the independent variables. This is a relatively robust model. The ANOVA table ($F = 64.851$, $p < 0.001$) shows that the regression model itself is significant, which means that, as a set, the predictors are significantly related to teacher burnout. As for the individual predictors, workload is a significant positive predictor of teacher burnout ($\beta = 0.629$, $p < 0.001$), which suggests that it is the most important predictor. This means that as workload increases, there is a significant increase in burnout. In contrast, administrative pressure does not significantly predict burnout ($p = 0.988$), suggesting that although it is related to burnout, it is not an independent predictor of burnout when workload is taken into account. This could suggest that the variance in administrative pressure is shared with workload, weakening its impact. These results suggest the need for workload management in order to sustain the workforce and the effectiveness of educational organisations.

8. DISCUSSION

This research findings have implications for the building of entrepreneurial ecosystems, as human capital quality is affected by workforce sustainability. The findings offer valuable insights into the determinants of teachers' burnout and their implications for workforce sustainability, human capital formation, and innovation capacity of educational institutions, with a particular focus on emerging Asian economies.

The findings show a positive and significant association between workload and teacher burnout,

implying that higher workloads contribute to feelings of emotional exhaustion and diminished performance. This aligns with previous studies highlighting workload as a key source of burnout in the education sector (Jovanović et al., 2025; Zhao et al., 2022; Van Droogenbroeck et al., 2014). The high teaching loads, preparation work, assessments and extracurricular activities not only impact the teachers' well-being but also limit their involvement in knowledge generation, skills enhancement and innovation-focused learning experiences. In consequence, the cultivation of entrepreneurial skills in students is diminished, which can reduce student readiness for founding a start-up and the effectiveness of the entrepreneurial pipeline.

The present study also shows a moderate positive correlation between administrative pressure and teacher burnout, suggesting that bureaucratic demands, such as reporting, policy adherence, and evaluation, are also a source of stress for teachers (Jerrim et al., 2020; Walker et al., 2019; Gardner & Torres, 2025). But the regression results prove the independent influence of administrative pressure is insignificant when workload is taken into account. This implies that administrative pressure may exert an indirect influence by increasing workload, thus aggravating burnout. These results are consistent with the Job Demands - Resources model, which explains that excessive job demands, such as workload, are the major factor in predicting burnout (Demerouti et al., 2014; Sha & Chang, 2025). This underscores the importance of institutional strategies that focus on workload reduction as a key element of sustainable human resource strategies.

These findings also point to the importance of teacher well-being in sustaining the resilience and performance of human capital systems in educational organisations from a workforce sustainability standpoint. Teachers are part of the knowledge workforce and have a direct impact on human capital development. When high, burnout can cause decreased productivity, increased absenteeism and greater intention to leave, reducing institutional resilience and sustainability (Cortez Soto & Heredia Escorza, 2024; Gardner & Torres, 2025). In the rapidly developing Asian economies, where education and economic development are intertwined, this can hinder the cultivation of human capital needed for innovation-based economies.

Crucially, burnout decreases the development of entrepreneurial competency among students by curtailing teachers' capacity to inspire creativity, critical thinking and recognition of opportunities. The effects of teacher burnout go beyond institution-level performance to impact innovation capacity and entrepreneurial ecosystem building. Educational institutions are fundamental building blocks of entrepreneurial ecosystems by equipping people with the knowledge, skills, and attitudes needed to create new ventures, solve problems and innovate. But if teachers are suffering from burnout, they are less likely to engage in innovative teaching methods, mentoring and experiential learning opportunities. This hinders the cultivation of entrepreneurial competencies, the startup pipeline and the efficiency of the innovation system.

The prominence of workload as the strongest predictor of burnout highlights the need for strategies to manage workload in order to support workforce well-being and innovation (Stoddart, 2024). High workloads not only impact on individual productivity but also constrain the contribution of educators to the creation of new knowledge and the development of entrepreneurial skills. This, in turn, can have a detrimental effect on readiness for startups, innovation performance and the long-term survival of small and medium enterprises (SMEs), especially in knowledge-based economies. SMEs, which are dependent on such skilled and innovative human capital, could face challenges in innovation and responsiveness due to constraints on human capital formation.

Moreover, in emerging Asian entrepreneurial ecosystems, the quality of human capital formation in educational institutions affects the innovation, startup and long-term growth potential. The viability of these ecosystems is not merely dependent on investment and policy but also on the ongoing development of effective, innovative and motivated human capital. Teacher burnout, which affects the quality of teaching and engagement in innovation, is a barrier to this. As such, human capital sustainability in education translates into the sustainability and success of entrepreneurial ecosystems.

This study contributes to the entrepreneurship literature in two ways: firstly, by broadening the existing understanding of human capital formation in educational institutions, and secondly, by demonstrating the impact on entrepreneurial ecosystems. While existing research has mainly focused on the psychological and organisational dimensions of teacher burnout, this study highlights the role of burnout in determining the sustainability of human capital development for innovation and entrepreneurship. First it draws a connection between workplace sustainability and entrepreneurial development by showing how workload and institutional pressures play a role in the sustainability and efficacy of human capital development. Second, it draws on sustainable human resource management to contribute to the entrepreneurship literature by demonstrating how worker well-being is a strategic element of innovation capacities and ecosystem effectiveness. Last, it shows how institutional inefficiencies in education systems can hinder the formation of entrepreneurial skills and thwart innovation-driven development.

Overall, the findings suggest that teacher burnout is not an organizational or individual issue but a matter of the sustainability of innovation systems and entrepreneurship. Addressing workload problems and lessening bureaucratic restrictions will be essential in enhancing teacher performance, increasing human capital formation and facilitating sustainable development of strong entrepreneurial ecosystems in emerging Asian economies.

9. IMPLICATIONS FOR ENTREPRENEURSHIP AND SME DEVELOPMENT

The findings of our study have significant practical implications on entrepreneurship and development of small and medium enterprise (SME) particularly in the emerging Asian economies where human capital is a major source of innovation and growth. Schools and universities are the basic components of entrepreneurial ecosystems because they teach skills, attitudes and abilities required in entrepreneurial and innovative endeavors. However, the presence of high rates of teacher burnout, which is mostly caused by work overload and administrative pressure, can jeopardize this underpinning role. In terms of the development of startups, teacher burnout disrupts the development of entrepreneurial skills such as creativity, problem solving and opportunity recognition among students. Such skills are essential in equipping students to start up and innovation-based enterprises. With a lack of personal accomplishment and engagement, teachers are less able to provide innovative instruction and mentorship (Madigan & Kim, 2021; Herman et al., 2018). This could have a negative impact on the entrepreneurial talent pipeline, ultimately impacting the effectiveness of the entrepreneurial ecosystem.

For SMEs, which are heavily dependent on highly skilled and flexible human capital, the effectiveness of human resource development in educational settings is a critical factor for future competitiveness. The effects of burnout (such as lower teaching quality, absence and attrition) can result in inconsistencies in skill development and a shortage of innovation-ready talent in the workforce (Roloff et al., 2022; Katsarou et al., 2023). This may impact productivity, innovation, and responsiveness in SMEs.

The research also has implications for innovation productivity from an economic perspective. Human capital is an input to innovation systems, and the effectiveness of human capital depends on the level of education and training. Workforce sustainability feeds into the capacity of education systems to support the processes of knowledge creation and innovation (Steiner et al., 2025; Saaranen et al., 2015). This may result in a decrease in innovation, fewer startups, and reduced economic growth, especially in knowledge-based economies.

For policymakers, the study highlights the importance of comprehensive approaches to linking education, entrepreneurship and innovation. Governments should focus on human resource sustainability by improving excessive workload and administrative tasks, which are major sources of burnout (Wahab et al., 2024; Jomuad et al., 2021). Establishing positive institutional policies and practices, better resource allocation, and fostering work-life balance will have positive outcomes for teacher well-being and performance. This will enhance human capital development, innovation and foster the creation of sustainable entrepreneurial ecosystems.

In conclusion, the research highlights that workforce sustainability in education is not only important for the institution but also a strategic factor for entrepreneurship and SME development. Improving teacher well-being will be vital for improving startup readiness, SME competitiveness, and sustainable innovation-based economic growth in the new Asian economies.

10. CONCLUSION

This paper has discussed how workload and administrative pressure affect teacher burnout in the framework of workforce sustainability and its consequences to entrepreneurial ecosystems in emerging Asian economies. The results show that the two factors are important contributors to burnout, and workload is the strongest predictor. Burnout is associated with emotional exhaustion and decreased professional performance due to excessive workload, and indirectly, burnout is caused by administrative pressure that increases job demands.In terms of sustainability, the research points out that the well-being of teachers is paramount in ensuring quality of human capital formation. Schools are at the forefront of imparting skills and competencies that are needed in innovation and entrepreneurship. Nonetheless, burnout diminishes the capacity of teachers to develop creativity, critical thinking and innovation-oriented learning, undermining the process of developing entrepreneurial capabilities. The paper also highlights that entrepreneurial ecosystem development is directly related to workforce sustainability in education. The reduction in the quality of human capital may have adverse impacts on the ability to innovate, the willingness to start up, and the economic growth in the long term. Therefore, the problem of burnout cannot be viewed from the perspective of organizations alone; it must be considered a strategic requirement to promote entrepreneurship and innovation. This study's findings show that the policies and measures that would reduce workloads, minimize administrative pressure, and provide better support structures would help ensure workforce sustainability and economic growth through

innovation. The study discovers that workforce sustainability in educational institutions is a significant structural component of the entrepreneurial ecosystem, which impacts innovation levels, startup readiness, and economic sustainability in emerging Asian economies.

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