Article

Challenges and opportunities in human resource development: A comparative study of Vietnam and Malaysia

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Abstract: This study compares Human Resource Development (HRD) in Vietnam and Malaysia, looking at their methods, problems, and institutional frameworks in the context of ASEAN economic integration and Industry 4.0. Based on Cho and McLean's (2004) integrated HRD model, this paper looks at recent research (from 2018 to 2023) to look at important topics such globalization, demographic changes, vocational training alignment, and technology disruption. Vietnam has a vast workforce, but it still has problems with low productivity, skill mismatches, and not being ready for the global market. On the other hand, Malaysia's institutional HRD structures are making more progress, even though its workforce is getting older and not everyone is adapting to digital transformation at the same rate. The study shows that we need HRD policies that are tailored to each industry, training that is delivered in a decentralized way, and stronger relationships between the public and commercial sectors. It also stresses how important it is for national HRD policies to include global competences and initiatives that help everyone learn new skills. The study adds a unique framework for comparing HRD and gives policymakers, educators, and practitioners useful information, even though it is constrained by its use of secondary data. Future study should use mixed-methods to confirm results and look into interventions that work in specific situations. The study shows that Vietnam and Malaysia need personalized, inclusive, and forward thinking HRD systems to produce strong and competitive workforces in the post-pandemic, digital driven global economy.

Keywords: human resource development; human capital development; training; socioeconomic; Vietnam; Malaysia

1. Introduction

Human Resource Development (HRD) has become more important as a way to make countries more competitive, especially in ASEAN economies that are going through structural and digital changes. Despite being close to each other and both working to improve their human resources, Vietnam and Malaysia have different paths when it comes to workforce readiness, institutional maturity, and policy execution. Vietnam leverages a large, youthful labor force yet struggles with systemic inefficiencies, while Malaysia, with an aging population, has institutionalized HRD efforts with moderate success in aligning workforce competencies to national development plans.

However, existing analyses of HRD in these two countries often adopt descriptive or parallel approaches that lack systematic comparison and critical synthesis (Nguyen and Malik, 2021; Rasiah et al., 2020). This study aims to move beyond generalizations and provide a comparative analysis grounded in thematic contrast, sectoral

differentiation, and regional variation. Employing Cho and McLean's (2004) transitional HRD model, the paper explores the institutional, organizational, and individual dimensions shaping HRD systems in both contexts.

While Vietnam's economic growth averages 5% annually, its labor productivity growth lags behind at approximately 3% a trend that highlights structural weaknesses in workforce planning and vocational training (General Statistics Office, 2022). The persistent mismatch between training outputs and labor market needs, particularly in technical and digital skills, undermines Vietnam's transition to a knowledge-based economy. Although vocational programs have expanded, high unemployment among technically trained individuals suggests ineffective alignment between supply and demand. Additionally, regional disparities such as underinvestment in Central and Highland provinces widen the gap between policy intent and local implementation.

Malaysia, by contrast demonstrates more policy coherence through initiatives like the Twelfth Malaysia Plan and the HRD Corp-led national training fund. Yet it faces unique challenges, including an aging labor force, digital skill gaps in rural areas, and ongoing brain drain. The HRD approach in Malaysia is more sector-sensitive, particularly in high-tech manufacturing and professional services, but still requires adaptive strategies to address gig economy dynamics and cross-border labor mobility.

This paper contributes to the literature by integrating a structured comparative framework informed by Cho and McLean's model, while also proposing an adapted analytical lens that factors in regional, sectoral, and demographic nuances. Although the analysis is based primarily on literature review, it draws on case-based evidence and sector-specific studies to deepen comparative insight. The study acknowledges the absence of original empirical data as a limitation and recommends that future work incorporate mixed-method approaches including interviews with HRD practitioners, employer surveys, and regional case studies to validate and expand upon the findings.

Ultimately, the paper seeks to answer the following research questions: (1) How do HRD strategies in Vietnam and Malaysia differ in terms of policy design, sectoral focus, and institutional integration? (2) What are the critical barriers and opportunities for aligning HRD systems with emerging labor market demands? The goal is to provide actionable insights that inform national policy and regional HRD frameworks in ASEAN's evolving economic landscape.

2. Literature review

Human resources form the cornerstone of national and organizational development, comprising individuals whose collective competencies, knowledge, and values drive performance. Unlike physical assets, human resources are dynamic, adaptive, and capable of continuous growth (Hassan et al., 2016). Effective Human Resource Development (HRD) strategies, therefore, must focus not only on technical skill acquisition but also on long-term capacity building across individual, institutional, and systemic levels (Alagaraja, 2013; Hamlin and Stewart, 2011).

Human Resource Management (HRM) and HRD should not be confused. HRM enhances the organization performance through systems and policies and administrative structures. HRD, in contrast, is developmental and strives to put an emphasis on learning, flexibility and creativity at all levels (Alagaraja and Wang,

2012). This study looks at how Vietnam and Malaysia's HRD systems fit into Cho and McLean's (2004) transitional HRD model, which divides HRD maturity into four stages, from developing policies to integrating them into the company's strategy.

Vietnam's Human Resource Development Strategy (HRDS 2011–2020) and Human Resource Development Master Plan (HRDMP) are examples of how the country is moving toward coordinating its HRD efforts at the national level. These frameworks were created at the same time as the larger Socio-Economic Development Strategy (SEDS), which made HRD a key factor in long-term economic change (Tran et al., 2021). However, Vietnam still exhibits traits of Stage 2 under Cho and McLean's model where policies are present but implementation is fragmented and sectoral coordination is weak. For instance, vocational training is often centralized and theoretical, contributing to a persistent mismatch between education outputs and labor market needs (Tien et al., 2021).

Despite having one of the largest labor forces in the region 51.2 million in 2021 Vietnam faces stark productivity challenges. Only 24.1% of its workforce received formal vocational training in 2021, and productivity growth lags behind Gross Domestic Product (GDP) growth, suggesting inefficiencies in skills utilization (General Statistics Office, 2022; Tien and Anh, 2019). Compounding this is a growing unemployment rate among technically trained individuals, pointing to systemic inefficiencies in both curriculum design and labor market alignment. These issues are more pronounced in rural provinces and among small- and medium-sized enterprises (SMEs), highlighting the need for regionalized and industry-specific HRD interventions.

Vietnam's labor export policies, initiated in the 1980s, have been one response to labor surpluses and domestic underemployment. Although nearly 400,000 Vietnamese workers are currently employed overseas, this strategy does not replace the need for internal workforce development tailored to a digital and industrial economy (Anh, 2008; MOLISA, 2021). Moreover, overreliance on low-skilled labor exports can stall progress toward becoming a knowledge-driven economy.

In contrast, Malaysia has achieved more mature integration of HRD into its economic planning. HRD is institutionalized through agencies such as the Human Resource Development Corporation (HRD Corp), the Ministry of Human Resources, and the National TVET Council (Technical and Vocational Education and Training). These bodies coordinate skill development through public-private partnerships, financial incentives, and digital readiness programs. With skilled labor comprising 29.9% of the workforce in 2021 and a productivity growth rate of 1.9%, Malaysia is transitioning toward Stage 3 in Cho and McLean's model characterized by strategic alignment and monitoring (DOSM, 2022; Prime Minister's Department of Malaysia, 2021).

However, Malaysia is not without challenges. It faces a growing aging workforce, a persistent brain drains (estimated at 2 million skilled workers abroad), and uneven access to upskilling in rural and gig economy sectors (World Bank, 2021). Despite progress, COVID-19 has disrupted employment patterns, causing a spike in unemployment to 4.8% in 2021 and exposing structural vulnerabilities in the workforce (DOSM, 2022).

Recent comparative studies have attempted to analyze HRD systems in both

countries. Tran (2020) found significant variations based on firm size, ownership structure, and sectoral focus, suggesting a need for tailored HRD approaches. Le and Truong (2021) highlighted Malaysia's more holistic digital HRD strategy, compared to Vietnam's limited readiness. Nguyen and Nguyen (2018) emphasized the urgency of stronger education-industry linkages in both nations. However, few studies adopt a comparative lens that incorporates regional and sectoral variation, or apply established HRD models to synthesize findings systematically.

This literature review reveals both countries' common priorities such as upskilling, digital transformation, and labor market alignment while underscoring divergent approaches to policy execution and stakeholder engagement. Importantly, this study aims to go beyond previous descriptive reviews by using a structured comparative framework that contrasts HRD strategies across specific industries (e.g., manufacturing vs. services), regions (urban vs. rural), and stages of economic development. While it does not present original empirical data, this analysis integrates findings from mixed-method studies, policy documents, and national statistics to draw practical, theory-informed conclusions. Future studies should incorporate interviews with HRD stakeholders, case studies from priority sectors, and regional labor market assessments to validate and expand upon these insights.

3. Research methodology

3.1. Research design

This paper uses an SLR methodology to compare and contrast HRD policies and practices, as well as implementation issues in Vietnam and Malaysia. The SLR, as highlighted by Snyder (2019), provides a more explicit, reproducible and comprehensive approach to data collection, quality assessment and synthesis compared to conventional narrative review. Guided by Cho and McLean's (2004) transitional HRD model, this analysis utilizes a framework to evaluate the national HRD system maturity, consisting of three levels of individuals, organizations and institutions.

The study design was divided into three main steps: planning, implementation and analysis. The research questions and review protocol were developed during the planning stage. During the execution phase, systematic searches and data extraction were performed and in the final phase thematic synthesis and theory-driven interpretation of the data was carried out. To ensure relevance and rigor, specific inclusion criteria were applied when selecting literature. These criteria included a geographical focus on Vietnam and/or Malaysia; topical relevance to key HRD themes such as workforce development, Technical and Vocational Education and Training (TVET), skills gaps, labor market integration, and institutional frameworks; and the type of source, prioritizing peer-reviewed journal articles, policy papers, working papers, and reports from reputable institutions such as the World Bank, International Labour Organization (ILO), Asian Development Bank (ADB) and UNESCO. The review primarily focused on studies published between 2018 and 2023, although seminal works were included to provide theoretical and historical grounding. Only English-language publications were considered.

For data collection, academic databases such as Scopus, Web of Science, JSTOR,

Google Scholar, and ProQuest were utilized due to their wide disciplinary coverage and access to high-quality peer-reviewed and policy-oriented literature. The search strategy employed Boolean combinations of keywords, including "Human Resource Development" AND Vietnam AND Malaysia; "Vocational Training" OR "Skills Development" AND ASEAN; "Labor Market" AND "Talent Management" AND HRD; and "Cho and McLean" AND "National HRD." An initial pool of 95 documents was retrieved. Following the application of screening criteria and the removal of duplicates and irrelevant sources, a total of 32 articles and reports were selected for full-text review and subsequent thematic coding.

3.2. Data analysis

The analysis for this study was based on Cho and McLean's (2004) transitional Human Resource Development (HRD) model and used a thematic coding method. This framework shows at national HRD systems as a whole, including policies at the institutional level, processes at the systemic level, and skills at the individual level. There were five main themes that the literature review was arranged into. The first one, Policy Coherence and Governance, looks at how well national HRD policies work with socio-economic development goals and how well different agencies work together. The second part, Institutional Infrastructure, looks at how public institutions, corporate sector actors, and international organizations shape and carry out HRD strategies. Third, Training Systems and Access looks at the quality, reach, and openness of vocational education, lifelong learning programs, and programs that help people gain new skills. The fourth area, Workforce Adaptability and Labor Mobility, looks at how HRD systems deal with changes in the labor market, as when workers need new skills, move to a new sector, or move around. Finally, Strategic Alignment with National Development Goals looks at how well HRD programs complement larger national goals including digital transformation, upgrading industries, and economic growth that includes everyone. This topic structure made it possible to do a full and comparative study of HRD practices in both Malaysia and Vietnam.

After this grouping, a comparative thematic synthesis was done to demonstrate the strengths, weaknesses, and possible avenues for growth for Vietnam and Malaysia in each area. This comparison highlighted both commonalities, like a shared focus on TVET reform and skills development driven by foreign investment, and variations, like varied levels of decentralization, industry involvement, and policy continuity. The study also looked at how HRD priorities and difficulties varied between sectors, comparing those in places with a lot of manufacturing to those in new service-based industries. For instance, Malaysia's service industry needs more and more individuals with soft skills and digital skills, whereas Vietnam's industrial hubs are still focused on teaching people technical and production skills.

The study also looked at differences between regions, such as how easy it is for people in cities and towns to get training, how hard it is for people to move from one job to another, and how much help workers get from different organizations. These considerations showed that there are still structural inequities in each national HRD system, especially in areas that aren't getting enough help, where skills mismatches and limited access to training are still getting in the way of inclusive growth. The study

used empirical research as triangulation points to make the results more reliable. For example, Rasiah et al. (2020) looks at innovation systems and workforce transformation in Malaysia, and Nguyen and Malik (2021) look at HRD challenges in Vietnam's growing industrial sectors. These real-world studies gave the solid proof that either backed up or improved the theme ideas and made the whole analysis completer and more meaningful.

However, the study has certain methodological limitations. As a literature-based review, it does not involve primary data collection through interviews, surveys, or field-based case studies. Consequently, the analysis is limited in its ability to establish causal relationships or to provide real time insights into dynamic changes within the HRD ecosystem. Additionally, there is a risk of publication bias, where available literature may overrepresent certain sectors or policy perspectives while underreporting grassroots or marginalized stakeholder experiences.

Despite these limitations, the use of a structured theoretical lens, recent empirical literature, and cross-national comparison allows this review to generate valuable interpretive insights and research hypotheses. The findings offer a foundation for policy discussion and academic inquiry, particularly regarding the institutional conditions and governance mechanisms required to enhance HRD systems in developing economies.

4. Results

4.1. Human resource development in Vietnam

Vietnam has a big demographic edge because it has 49.2 million people of working age and 35% of its population is between the ages of 20 and 39 (General Statistics Office, 2022). This young workforce has a lot of potential for sectors that need a lot of workers and for worldwide labor markets. Vietnam's average labor productivity growth rate was 3.9% from 2006 to 2015, although it is still behind regional competitors like Malaysia and Thailand (Tien and Anh, 2019). Many individuals continue to be employed in low-productivity sectors such as agriculture, which diminishes the nation's competitiveness and highlights the necessity for advancements in human capital development.

The employment landscape in Vietnam is undergoing significant transformation as conventional industries give way to those driven by research, technology, and innovation. The government has made improving vocational and technical training a high priority, especially because it has to do with trade agreements like the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). These deals have brought in more foreign direct investment and made new demands on the workforce. People have been working to update training programs, strengthen partnerships between the public and private sectors, and make sure that national certifications are in accordance with global standards. But growth isn't always steady. A lot of rural and undeveloped areas still have problems receiving appropriate education and training. This means that the workforce is not equally ready for the challenges of Industry 4.0 (Song et al., 2020).

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4.2. Human resource development challenges in Vietnam

Vietnam has a good population and a growing economy, but it still has big challenges with developing its people. One of the most significant things is the overall quality of the personnel. According to Song et al. (2020), just 10.4% of Vietnam's workers are skilled and only 5% understand English well enough to work in global value chains. This lack of expertise makes it tougher for Vietnam to enter international markets and attract high-value foreign direct investment. Vietnam has made headway in making education and vocational training more available, but the programs are still not very deep or up-to-date, which makes it challenging for the country to advance toward a knowledge-based economy.

One major issue is that the training results don't match what the industry wants. A lot of people who graduate from vocational and technical institutions are either unemployed or not working enough since the curriculum is out of date, they don't receive enough experience with tools that are used in the business, and they don't get enough hands-on training. Tien et al. (2021) say that even if there are more vocational training institutions, the quality and relevancy of the instruction have not kept up with the needs of modern industry. Employers often say they are unhappy with how technically skilled, good at solving problems, and ready for work graduates are. Because of this, companies often have to spend more money to retrain new personnel, which makes things less efficient and lowers production.

Unequal access to training and professional development opportunities is another fundamental problem in Vietnam's HRD scene. Multinational companies offer the most structured and high-quality training programs, but they tend to focus on senior management or professional jobs, leaving lower-level employees and workers in domestic firms behind (Tran et al., 2021). This has led to a divided workforce where chances to learn new skills are not evenly dispersed, which makes social and economic differences worse within and between regions. People who work in rural locations or for small businesses, in particular, have few chances for formal training or professional progression. This leads to discontent, high turnover, and low employee retention.

The Fourth Industrial Revolution (4IR) has made these problems much worse by adding additional technical needs that most of the current workforce is not ready for. Automation, Artificial Intelligence (AI), and digital platforms are quickly changing the way people work in many fields. This puts even more stress on low-skilled and semi-skilled workers who don't know how to use technology or adjust to new

situations. Hoa (2020) says that Vietnam's workers still lack basic soft skills like communication, teamwork, and speaking a foreign language. This makes the workforce less flexible and responsive. Vietnam might end up in a "low-skill trap" if it doesn't make quick changes to train workers in new skills and make sure that training systems include skills that are useful in the future. This would slow down economic growth since the country wouldn't be able to move to higher-value industries.

4.3. Human resource development in Malaysia

Malaysia's approach to Human Resource Development (HRD) is relatively structured and strategically aligned with national economic transformation agendas. Governance of HRD is coordinated through inter-ministerial collaboration, particularly between the Ministry of Human Resources (MOHR), the Ministry of Higher Education (MOHE), and national bodies such as the National Vocational Training Council and the Human Resources Development Corporation (HRD Corp). This institutional alignment ensures that education, labor, and industrial policies are developed cohesively. HRD planning is closely tied to overarching national visions like the Twelfth Malaysia Plan (2021–2025) and Industry4WRD, Malaysia's national policy on Industry 4.0, which emphasize the shift towards a high-skilled, innovation-driven economy (Azizan et al., 2021).

Strengthening Technical and Vocational Education and Training (TVET) is a crucial component of Malaysia's Human Resource Development (HRD) strategy. That is to address current areas of skills shortage, such as sophisticated manufacturing, logistics, construction and hospitality. Flushing away their image as second-class institutions and attracting more students, the TVET schools are being given new names and face lifts. Increasingly, programs are skills based, and there are attempts to ensure that training programs adhere to global standards and the needs of the sector. The government also has been promoting further collaboration between TVET schools and industry through an initiative such as the Public-Private Research Network (PPRN) and TVET-Public-Private Partnership Clusters.

The Malaysian Education Blueprint (2015–2025) and the Human Capital Strategic Reform Initiative are two examples of policy frameworks that stress the relevance of HRD by setting high standards for workforce development. One of the main goals is to increase the number of skilled professionals in the workforce from 29.9% in 2021 to more than 35% by 2030 (Department of Statistics Malaysia, 2022). Malaysia has started a number of upskilling and reskilling initiatives, including the PENJANA-SKILL and National Dual Training System (NDTS), which combine classroom learning with real-world work experience. Digital platforms and micro-credentialing programs have also become more popular. They give Malaysians, especially young people and workers who have lost their jobs, access to flexible learning possibilities that are in line with the skills needed for future jobs.

Even with these improvements, there are still problems which employers continue to complain that graduates of four-year institutions don't have such skills as critical thinking, communication and digital know-how. This indicates that the skills-employability mismatch could be addressed more aggressively. There are also

concerns about the fragmentation of the TVET ecosystem, which involves several ministries whose mandates overlap and whose quality assurance systems don't always function. There are still variations between towns and cities in the quality of access to good training and careers advice. To stay globally competitive and socially inclusive, Malaysia needs to further develop its HRD system by harmonizing policies, investing in trainer development and promoting equal skills training opportunities throughout the entire country. These efforts are essential for Malaysia to fully embrace its role as a high-income nation and build this success on talent, innovation and productivity.

4.4. Human resource development challenges in Malaysia

Malaysia has invested significantly in enhancing its human capital and has established a structured policy framework. However, substantial challenges remain that hinder the country from completely achieving its human resource development objectives. One big problem is that there aren't enough highly qualified workers, especially in important areas of the economy like engineering, computer technology, and advanced manufacturing. Abdullah (2009) says that it is still hard to fill technical jobs that need particular training and experience. This slows down production and creativity in industry. The fact that training results don't match what the industry needs makes this problem much worse. Employers often worry that current education and training programs don't keep up with how quickly technology changes in the workplace or the needs of specific industries (Ismail and Abiddin, 2009). This divergence is making the skills gap bigger, even while new graduates are entering the job market.

Another worry is that Malaysia's workforce is getting older, which makes it harder to retrain and reskill people. As digitalization and automation change the job market, older workers typically have trouble adapting to new technologies. This makes it hard to bring in younger workers. Akinyemi and Abiddin (2013) say that Malaysia's human capital is less flexible since older workers are less likely to learn new things and have low digital literacy. This demographic trend is bad for industries that are changing quickly because it makes it harder for the country to have a workforce that can handle digital changes. To fix this, we need training programs that are more inclusive and responsive to age, as well as policies that encourage people to keep learning throughout their careers.

Talent retention and access gaps are also still major problems. The problem of brain drains, which affects almost two million Malaysians who work abroad, continues to make it harder for the country to find high-quality workers (World Bank, 2021). Because they think they can't move further in their careers, make more money, or get more respect at home, many skilled people look for better jobs abroad. At the same time, Malaysia has added more Technical and Vocational Education and Training (TVET) programs, but there are still problems with quality, infrastructure, and access, notably between rural and urban areas (Sparrow et al., 2016). These differences between regions make it harder for everyone to get the skills they need and make it harder for the government to reach its objective of inclusive HRD. To close these gaps, stakeholders need to work together more effectively, quality assurance procedures need to be standardized, and marginalized populations need targeted support to make

sure that no part of the population is left behind in the country's development journey.

4.5. Comparative synthesis

Comparison on Vietnam and Malaysia indicates that there are two trajectories but interrelated trends towards the development of Human Resource (HR) systems in the ASEAN region. Malaysia has a stronger, more unified structure of institutions than Saudi Arabia; well-coordinated instincts of key national stakeholders, including the Ministry of Human Resources (MOHR), the Human Resource Development Corporation (HRD Corp), and the National Vocational Training Council. These groups function across ministries to coordinate so that policies are coherent and get implemented. In contrast, Vietnam HRD governance is more fragmented, involving several ministries with no explicit whole-of-government approach, but only limited vertical policy coherence is found. This has made it more difficult to carry through policies, and left institutions less accountable.

The workforce profile in both countries reflects differing demographic and economic realities. Vietnam benefits from a younger labor force, with a large proportion of its population in the productive age group. However, this demographic advantage is undermined by low productivity and a predominance of low-skilled workers only 10.4% of whom are classified as skilled (Song et al., 2020). Malaysia, meanwhile, is experiencing the challenges of an aging workforce, which complicates reskilling efforts, particularly in the context of digital transformation. While Malaysia has a relatively higher share of skilled labor (29.9% as of 2021), workforce productivity and adaptability still vary significantly across sectors, with shortages persisting in technical and high-value roles.

The training systems in both countries are undergoing reform but face different constraints. Vietnam continues to struggle with limited access to quality training, especially in rural areas, and vocational education remains hindered by outdated curricula and limited practical exposure. The country's TVET sector is growing but lacks the modern infrastructure and industry engagement needed to significantly boost workforce competencies. Malaysia, however, has taken some giant steps in the development of its TVET sector, backed by initiatives such as the Malaysian Education Blueprint and the National Dual Training System. However, quality and relevance still vary, and rural-urban disparities in access to training persist.

When it comes to education-industry linkages, Malaysia outperforms Vietnam in forging partnerships that bridge the gap between training providers and labor market demands. Institutions such as the Penang Skills Development Centre (PSDC), Industrial Training Institutes (ILPs), and various public-private partnership (PPP) mechanisms have fostered stronger industry collaboration in curriculum design, internships, and job placements. In contrast, Vietnam has weak linkages with little input from employers in the development of training programs, which results in a mismatch in the skills that graduates have to offer and high unemployment among youth in technical areas.

The table shows that both countries are preparing their workers for the Fourth Industrial Revolution (4IR), but they are doing so at different paces. Vietnam isn't quite ready yet, because there are still digital gaps, particularly in rural areas, and not

enough new technologies are applied in training. In contrast, Malaysia is moderately to highly prepared due to government initiatives such as Industry4WRD as well as greater emphasis on Science, Technology, Engineering and Mathematics (STEM) education, digital literacy and fresh concepts. Malaysia has yet to figure out how to teach the elderly and ensure that no one gets left behind in digital transformation efforts.

Vietnam and Malaysia are contrasting yet mutually supportive models of how HRD can develop in ASEAN. Vietnam is improving training centers to be more accessible and making institutions stronger. Malaysia, meanwhile, is striving to improve its HRD programmers and ensure they fall in line with the country's broader growth aspirations. Both countries have big problems, but their problems are not the same. For instance, for Vietnam that means grappling with problems finding skilled labor, ensuring the curriculum meets the demands of the market, and stitching together institutions. On the flip side, Malaysia must grapple with an aging workforce, the exodus of people to countries with better job opportunities and continuing challenges for effective skills training and employment outcomes. Both need to work together on ensuring everyone can learn digital skills, on connecting education and business more closely, and on enabling people to continue learning throughout their lifetime.

Table 1 below summarizes the comparative positioning of Vietnam and Malaysia's HRD systems across key dimensions using Cho and McLean's (2004) transitional HRD model. It illustrates areas of convergence and divergence, offering a structured view of each country's developmental stage.

Table 1. Comparative maturity of HRD systems in Vietnam and Malaysia based on Cho and McLean's Model.

HRD Dimensions	Vietnam	Malaysia	HRD Maturity Stage
Policy Framework	HRD Strategy (2011–2020), HRD Master Plan; fragmented, not fully aligned with national agenda	Twelfth Malaysia Plan, HRD Corp, Industry4WRD; coherent and aligned with national development	Vietnam: Stage 2 Malaysia: Stage 3
Institutional Coordination	Multiple ministries; weak vertical/horizontal integration	Centralized under MOHR & HRD Corp; public-private coordination	Vietnam: Stage 2 Malaysia: Stage 3
Education-Industry Linkages	Limited employer input in curriculum; weak internship structures	Strong PPPs via PSDC, NDTS, ILP; industry-aligned curriculum	Vietnam: Stage 2 Malaysia: Stage 3
Workforce Skills Readiness	Low vocational training participation (10.4% skilled); skills mismatch in technical fields	Moderate skill base (29.9% skilled); but mismatch in critical thinking, digital skills remain	Vietnam: Stage 2 Malaysia: Stage 3
Digital & 4IR Preparedness	Rural digital divide; underutilized Industry 4.0 technologies; low digital literacy	National Industry4WRD policy; emerging digital platforms & STEM emphasis	Vietnam: Stage 1–2 Malaysia: Stage 3
Monitoring & Evaluation	Limited follow-up; weak performance tracking	National TVET coordination bodies; Key Performance Indicator (KPI) monitoring and performance reviews	Vietnam: Stage 2 Malaysia: Stage 3
Inclusivity & Access	Uneven access between rural/urban; poor outreach to SMEs	Better coverage, but still rural-urban gaps; aging workforce inclusion a challenge	Vietnam: Stage 2 Malaysia: Stage 3

4.6. Key themes from literature

Table 2 below synthesizes recent literature to highlight key objectives, methods, themes, and findings of HRD in both countries:

Table 2. Summary of key literature on HRD challenges and themes in Vietnam and Malaysia (2009–2021).

Author(s) & Year	Country	Methodology	Theme	Key Findings
Hoa (2020)	Vietnam	Literature Review	HR landscape and challenges	Investment gaps in training; poor program evaluation; need to prepare workforce for globalization
Tien and Anh (2019)	Vietnam	Synthesis Analysis	Skilled workforce development	Large labor pool with inadequate professionalism and qualifications
Song et al. (2020)	Vietnam	Survey & Interviews	HR in SMEs, 4IR readiness	Lack of communication, problem-solving, leadership skills among SME workers
Tran et al. (2021)	Vietnam	Literature Review	Training inequality in Multinational Corporations (MNCs)	Senior managers receive more training, creating morale issues and skill gaps
Tien et al. (2021)	Vietnam	Observation & Interviews	Skills mismatch in vocational training	Thousands of graduates but shortages in technical roles
Azizan et al. (2021)	Malaysia	Document Analysis	Human capital strategy	Training system is central to transitioning into a knowledge-based economy
Widarni and Wilantari (2021)	Malaysia	Quantitative Analysis	HRD and economic growth	Strong links between education, health, and economic performance
Ismail and Abiddin (2014)	Malaysia	Literature Review	TVET challenges	SMEs lack trained talent; engineering professions face supply constraints
Abdullah (2009)	Malaysia	Interviews	HR in manufacturing	Retaining technical experts is challenging; aging workforce not ready for digital shift
Van Hiep (2021)	Vietnam	Literature Review	HR supply and demographics	Young labor supply is an advantage, but not yet optimized

5. Discussion

This study compares Human Resource Development (HRD) in Vietnam and Malaysia by bringing together the most recent research and policy information. This discussion uses Cho and McLean's (2004) integrated HRD model, which focuses on learning at the individual, organizational, and national levels, to explain the main findings in an organized way and suggest policy changes that are useful in this situation. The comparison shows that there are both similarities and differences, which are caused by demographic, sectoral, and institutional factors. It also finds new ways to contribute to the field by linking HRD priorities to post-pandemic recovery, digital transformation, and regional integration in the ASEAN context.

5.1. Responding to demographic transitions and aging workforce

The changing demographics of Malaysia, with lower birth rates and higher life expectancies, make it very hard for Human Resource Development (HRD) to do its job (Hamid et al., 2023). As the population gets older, companies need to reassess how they manage their workers to make sure that older workers stay engaged, productive, and flexible, especially now that technology is changing so quickly. It has become more and more vital to retrain and reskill this group of people in order to keep the country's productivity and competitiveness high. Inclusive HRD plans must take into account workers of all ages, with rules in place to help older workers move into new positions or responsibilities (Rockwood, 2024).

One important way to do this is to deal with age-related prejudices in hiring and firing. Performance reviews shouldn't just look at how long someone has been with the company. They should also look at results, contributions, and how well someone

can adjust their skills. Giving older people chances to go up in their careers, such taking on leadership responsibilities or working on projects, can help them keep improving professionally. It's important to give older workers the tools they need to stay relevant in the field by promoting a culture of lifelong learning through age-inclusive training programs and digital literacy efforts (Tourigny and Pulich, 2025).

Akinyemi and Abiddin (2013) say that encouraging learning between generations is another effective way to deal with an aging workforce. Not only do mentorship programs, cross-generational collaboration, and peer-to-peer knowledge exchange help organizations develop, they also boost morale and bring people together (Mouboua et al., 2024). Flexible work hours, phased retirement alternatives, and consulting jobs beyond retirement can help experienced professionals keep making valuable contributions while also meeting their changing requirements. By using these flexible HRD practices, Malaysia may better deal with changes in its population and create a more resilient and diverse workforce.

5.2. Strengthening vocational training and industry relevance

Vietnam's growing youth population and labor force provide it a big demographic edge. But this potential is still not being used to its full potential because the country's vocational education and training (VET) system is still poor. A lot of graduates from vocational programs don't have the technical skills and work readiness that employers want, which shows that there is a big gap between what training institutions teach and what the job market needs (Ndlovu and Wyk, 2023). This gap is caused by old curriculum, not enough interaction with industry, and not enough real-world experience. Vietnam has to quickly fix its vocational training system so that the skills being taught are in line with the changing needs of the private sector. This would help the country make the most of its labor market potential.

In this case, Malaysia is a good example because it has successfully used Public-Private Partnership (PPP) frameworks in vocational training. The Penang Skills Development Centre (PSDC) and the National Dual Training System (NDTS) are two examples of how training providers and industry can work together to make the workforce more relevant (Amdan et al., 2024). These strategies combine classroom learning with planned, on-the-job training to make sure that students learn both theory and how to do things in the actual world. Malaysia has made its vocational education and training (VET) system more responsive by getting employers involved in designing the curriculum, testing students, and placing them. Vietnam may use this expertise to improve its own connections between industries and bring vocational schools up to date in all fields.

Vietnam might also improve the quality and consistency of vocational education by putting in place standardized certification systems, national trainer accreditation processes, and performance evaluations based on outcomes. These kinds of frameworks would not only make things more credible and accountable, but they would also encourage other training institutions in the country to have the same high standards of quality. Rural and poor areas should get special attention because they still don't have good access to vocational training (Mustafa et al., 2022). Vietnam can make its vocational education and training (VET) system more accessible and in line

with industry needs by making these changes and putting money into building up its institutions. This would help both economic growth and social mobility.

5.3. Managing globalization and workforce mobility

HR rules need to be internationally informed yet adaptable to local needs because workers are moving more freely between the two countries. Vietnam's focus on sending workers abroad to earn money has shown that there are big discrepancies in how well-prepared workers are, especially when it comes to language skills, understanding the law, and being able to adjust to different cultures.

Vietnam and Malaysia both need to add global skills to their HRD systems if they want to compete on a global scale. This includes learning English, how to talk to people from other cultures, international labor legislation, and how to understand taxes. HR professionals should also learn how to handle expatriates, help them become settled in a new country, and help them move. According to Ismail and Abiddin (2014), companies must follow the rules of the country where they are based while also helping their expatriate workers fit in with the local culture.

To make sure that all levels of employees have access to fair training opportunities, not just senior management, multinational companies should also make this commitment. This will help with morale and development across all levels of the firm.

5.4. Adapting to technological change and Industry 4.0

The Fourth Industrial Revolution (4IR) has changed the way people work around the world in a big way. This has made it even more important to have digital skills, be innovative, and be able to adapt to new situations. In response, Malaysia has put a lot of money into programs like Industry4WRD, the country's national policy on Industry 4.0, to promote STEM education, digital literacy, and new technologies. But there are continuing issues particularly in rural areas and among small and medium enterprises (SMEs) where access to the technology, training resources, and digital skillsets are still deficient (Azizan et al., 2021). These distinctions further complicate Malaysia's wider goal of educating a multiskilled, technology enabled workforce.

Vietnam, meanwhile, is only just starting to develop the technological and educational underpinnings that would prepare it to be competitive in the Fourth Industrial Revolution. But the country also faces challenges, including a dearth of programs to help people learn new skills, too little cooperation between business and academia and a work force that is not very technologically proficient (Song et al., 2020). Among rural Americans and older or less educated people, for whom opportunities to master new skills can be scarce, the gap is even wider. Vietnam still can't properly exploit 4IR technologies like AI, automation, and the Internet of Things because of this.

Both Malaysia and Vietnam need to have long-term HRD plans in place that focus on future skills, constant learning, and innovation in order to keep up with the changing needs of the digital economy. To be ready for technology upheavals, governments should make innovation hubs, national digital academies, and skills forecasting systems a part of their normal operations. Also, HRD programs need to

encourage critical thinking, creativity, and problem-solving, especially among young people and people who don't have access to these things. Cho and McLean's (2004) transitional HRD model, which stresses the importance of learning at the individual, organizational, and institutional levels as the driving force for systemic change, is in line with these aims. The promise of Industry 4.0 could make current disparities worse instead of fostering sustainable growth if there aren't planned and inclusive solutions in place.

5.5. Sectoral differentiation and regional customization

One important thing this analysis found is that national Human Resource Development (HRD) initiatives tend to be too broad. The needs of the labor market vary widely between sectors like manufacturing, services, agriculture and new digital industries. The industrial sector, for example, more visibly values technical skills, will emphasize on the job safety or expects industry-recognized certifications. On the other hand, the services industry places more importance on service quality, emotional intelligence and language skills (Osman et al., 2011). If you ignore these differences in crafting universal training programs, they may not be as effective, or they might have a different effect. In this regard, HRD planning has to accommodate each sector with the proposal of designing different training programs and HRD roadmaps for each industry to meet the specific required skills and competencies for each sector (Mustafa et al., 2022).

HRD is further complicated by regional specificity in Vietnam and Malaysia and sector specificity. There are wide differences between cities and the countryside and between prosperous and poor provinces. Cities typically offer better institutional infrastructure, more options for training and a more diverse set of job options. In contrast, there remain limited opportunities in rural and remote inhabitants (Hamid et al., 2023). It's going decentralize HRD tactics and will need more personalization for these problems to be solved. This would allow them more discretion in allocating their resources and designing their programs. Vietnam, for instance, could replicate Malaysia's state-level technical training schools, which have been instrumental in addressing the local labor needs and skills voids in various places.

Local HRD methods/modes such as mobile training units, regional job hubs, and localized vocational schools that are linked to particular industries are also effective methods of narrowing regional skill gaps and bringing people to work where it is needed (Amdan et al., 2024). These models ensure that HRD systems are not only adaptable to movements in economy but also equitable for all. Governments can enhance HRD ecosystems to be more flexible and responsive by developing policies and practices that maintain flexibility and afford customization. Ultimately, these measures are helping the country achieve its broader objectives of addressing inequality, raising productivity and achieving sustainable growth.

5.6. Original contribution and policy implications

The contribution of this study to the HRD literature is that it contributes to the sub-field of Human Resource Development (HRD) in that it is just one way, a creative way of using a comparative theme analysis drawing from Cho and McLean's (2004)

HRD transitioning model. The study examines the comparison and differences of HRD in Vietnam with Malaysia in a more systematic manner than previous studies examining a single country or industry. This study is giving us a better understanding of how national HRD systems address both internal issues as well as non-internal challenges and global trends in labor, but by organizing the study around key issues such as institutional systems, workforce flexibility, and readiness for the 4IR.

It also helps to move the debate forward by generating ideas for policy that are specific to every domain, account for cultural differences, and can be generalized to technology. Both countries struggle with issues such as workers with the wrong sort of skills, an aging workforce, and patchy adoption of new technologies. But the solutions to the policy questions must be country-specific. For example, Vietnam might gain from two-track vocational education programs that combine classroom learning with real-world job duties. This strategy has worked nicely in Malaysia, plugging in high-level HR functions such as the ability to work with other cultures, being more flexible, and also helping the two countries compete better globally.

The study also demonstrates how much the human race is struggling. Initiatives to foster intergenerational learning platforms enable younger and older employees to share information with each other. This is crucial, especially since Malaysia's workforce is getting older. Targeted digital literacy initiatives ensure rural community members are not left behind when it comes to digital capabilities and does not let underprivileged areas fall behind, which would benefit both countries. Finally, making sure HRD policies and programs are compatible with national economic goals, while also meeting the requirements of the public and private sectors, and factoring in regional idiosyncrasies can allow the labor market to work better and result in sustainable growth. Vietnam and Malaysia policymakers might take these same steps to ensure that their work forces are more flexible, accessible to all, and prepared for the future.

6. Conclusion

Companies need to employ a diversity of mechanisms for hiring and training employees and building them into a strong and future-ready workforce. In order to attract and retain the best employees, companies should provide work that's interesting, develop a strong company culture, and offer competitive compensation that includes a good salary and full benefits. There are ways to help build the talent pipeline, such as working with schools for recruiting drives and internship programs. It's crucial to have rigorous candidate-screening processes so that employees' skills meet the firm's needs. With the arrival of the Fifth Industrial Revolution, it's even harder to find the right skill set in personnel because everything is moving so quickly from a technology standpoint. It's important that the nation's success be contingent on solving these human resource issues; yet businesses also need to be competitive and innovate globally.

The findings of this research have significant implications for the role of HRD in the context of Malaysia and Vietnam. The skills gaps and mismatches in both countries suggest that more training programs aligned with what employers are looking for are needed. HRD professionals should partner with clients in the business to design

courses that teach people what they need to know to do their jobs well. Older workers in Malaysia are not easy to upskill, which shows us that we are in urgent need of HRD practices that include all age groups as active members and leverage the skills of older workers while also teaching them to work with new technologies. The difficulties in both countries' education systems point to the need for HRD to ensure that schools and businesses work more closely together. This might involve establishing internships, apprenticeships, and work-based learning in which learners actually get to experience the workforce. According to an article, HRD professionals should also work to improve soft skills, such as communication, teamwork, and problem-solving, to make the workforce more competitive and adaptable to rapid changes in technology and the economy.

Future research must investigate the extent to which HRD programs can assist with issues in Malaysia and Vietnam. Longitudinal studies might explore how customized training programs change the extent to which workers are effective at performing their jobs and how soon they advance in their careers. It would be interesting to take a closer look at how Information and Communications Technology (ICT) is applied in HRD (e.g., e-learning, virtual reality, and AI applications). From HRD practices in other ASEAN countries, we would then be able to gain insights about best practices and trends from within our own region. Future research should also examine how government policies, leadership, and cultural values influence HRD in those countries. Qualitative studies focusing on how HRD consultants, employees, and other actors perceive the situation could provide valuable information on the challenges and opportunities in these countries. Finally, exploring the implications of global mega events, such as the COVID-19 outbreak and the Fourth Industrial Revolution, on HRD practices will guide workforce planning strategies that have the potential to adapt in the face of change.

References

Abdullah, H. (2009). Major challenges to the effective management of human resource training and development activities. Journal of International Social Research, 2(8), 11–25.

Abiddin, N. Z. (2007). Challenges in PhD studies: The case of arts students. European Journal of Social Sciences, 5(2), 83–93.

Abiddin, N. Z., & West, M. (2007). Supervision practices for foreign graduate research students. American Journal of Applied Sciences, 4(6), 362–370.

Akinyemi, G. M., & Abiddin, N. Z. (2013). Human capital development: An interdisciplinary approach for individual advancement and economic improvement. Asian Social Science, 9(4), 150–157. https://doi.org/10.5539/ass.v9n4p150

Alagaraja, M. (2013). HRD and HRM perspectives on organizational performance: A review of literature. Human Resource Development Review, 12(2), 117–143. https://doi.org/10.1177/1534484312450868

Alagaraja, M., & Wang, J. (2012). Development of a national HRD strategy model: Cases of India and China. Human Resource Development Review, 11(4), 407–429. https://doi.org/10.1177/1534484312446190

Amdan, M. A. B., Janius, N., Jasman, M. N. B., & Kasdiah, M. A. H. B. (2024). Advancement of AI-tools in learning for technical vocational education and training (TVET) in Malaysia (empowering students and tutor). International Journal of Science and Research Archive, 12(1), 2061. https://doi.org/10.30574/ijsra.2024.12.1.0971

Anh, D. N. (2008). Labour migration from Vietnam: Issues of policy and practice. Available online: https://www.ilo.org/publications/labour-migration-viet-nam-issues-and-policy-and-practice (accessed on 10 June 2025).

ASEAN Secretariat. (1967). The ASEAN Declaration (Bangkok Declaration). Jakarta, Indonesia.

Azizan, N., Pangil, F., & Zin, M. L. M. (2021). Human capital development in Malaysia: Issues and challenges. In: Modeling Economic Growth in Contemporary Malaysia. IGI Global. https://doi.org/10.4018/978-1-7998-6482-4.ch007

Azizan, S. N., Aziz, N. A., & Nor, M. Y. M. (2021). Industry4WRD Readiness Assessment: Progress and Challenges in Malaysian SMEs. Journal of Industrial Development, 30(2), 45–58.

Cho, E., & McLean, G. N. (2004). What we discovered about NHRD and what it means for HRD. Advances in Developing Human Resources, 6(3), 382–393.

Department of Statistics Malaysia (DOSM). (2022). Labour productivity, fourth quarter 2021. Available online: https://www.dosm.gov.my (accessed on 10 June 2025).

General Statistics Office (Vietnam). (2022). Report on labour force survey, quarter 4 and the whole year 2021. Available online: https://www.gso.gov.vn (accessed on 10 June 2025).

Goodwin, J., O'Connor, H., & Quinn, M. (2014). Training and labour needs of young workers in Vietnamese organisations. Education + Training, 56(1), 39–53. https://doi.org/10.1108/ET-02-2013-0015

Hamid, H. A., Piahat, M. T., Haris, N. A. L. A., & Hassan, M. F. (2023). Shades of gray TVET in Malaysia: Issues and challenges. International Journal of Academic Research in Business & Social Sciences, 13(6). https://doi.org/10.6007/ijarbss/v13-i6/16747

Hamlin, B., & Stewart, J. (2011). What is HRD? A definitional review and synthesis of the HRD domain. Journal of European Industrial Training, 35(3), 199–220. https://doi.org/10.1108/03090591111120377

Hassan, A., Maharoff, M., Abiddin, N. Z., & Ro'is, I. (2016). Teacher trainers' and trainee teachers' understanding towards the curriculum philosophy regarding soft skills embedment in the Malaysian Institute of Teacher Education. Policy Futures in Education, 14(2), 164–175. https://doi.org/10.1177/1478210315597857

Hoa, N. T. (2020). Current situation and solutions for Vietnam's human resources nowadays. PalArch's Journal of Archaeology of Egypt/Egyptology, 17(7), 13755–13763.

Ismail, A., & Abiddin, N. Z. (2014). Issues and challenges of technical and vocational education and training in Malaysia towards human capital evelopment. Middle-East Journal of Scientific Research, 19, 7-11.

Ismail, A., & Abiddin, N. Z. (2009). The important of graduate students' needs on supervisory contribution in a Malaysian public university. The Social Sciences, 4(4), 355-365.

Le, T. H., & Truong, T. N. (2021). Enhancing digital HRD strategies in Malaysia and Vietnam: A comparative outlook. Journal of Asian Economic Development, 8(2), 122–140.

Ministry of Higher Education Malaysia. (2020). Higher education statistics 2019. Available online: https://www.mohe.gov.my (accessed on 10 June 2025).

Ministry of Labour, Invalids and Social Affairs of Vietnam. (2021). Vietnam's labour market update, Vol. 33. Available online: https://www.ilo.org (accessed on 10 June 2025).

Mouboua, P. D., Atobatele, F. A., & Akintayo, O. T. (2024). Cross-cultural competence in global HRD: Strategies for developing an inclusive and diverse workforce. International Journal of Science and Research Archive, 12(1), 103. https://doi.org/10.30574/ijsra.2024.12.1.0765

Mustafa, H. A., Hussain, M. A. M., & Zulkifli, R. M. (2022). Industries and vocational training centres partnership: Issues and improvement plan. International Journal of Academic Research in Progressive Education and Development, 11(1). https://doi.org/10.6007/ijarped/v11-i1/11959

Ndlovu, N. S., & van Wyk, M. M. (2023). College managers' views on the employability of vocational engineering graduates: A case of the South African TVET college sector. Journal of Education, Teaching, and Learning, 8(1).

https://doi.org/10.26737/jetl.v8i1.3349

Nguyen, D. T., & Malik, A. (2021). Vocational education in ASEAN: Comparative perspectives from Vietnam and Malaysia. Asia Pacific Education Review, 22(1), 45–63. https://doi.org/10.1007/s12564-020-09673-z

Nguyen, T., & Nguyen, D. T. (2018). Strengthening education-industry linkages: A strategic HRD approach in Vietnam and Malaysia. International Journal of Training and Development, 22(4), 312–328.

Okoye, P. V. C., & Ezejiofor, R. A. (2013). The effect of human resources development on organizational productivity. International Journal of Academic Research in Business and Social Sciences, 3(10), 250–268.

Osman, I., Ho, T. C. F., & Galang, M. C. (2011). The relationship between human resource practices and firm performance: An empirical assessment of firms in Malaysia. Business Strategy Series, 12(1), 41–48. https://doi.org/10.1108/17515631111100412

Osman, S., Bachok, S., Bakri, N. H., & Ibrahim, M. (2011). Bridging the gap between skills training and employment in Malaysia: The case of the automotive industry. Asian Journal of Business and Management Sciences, 1(2), 56–72.

Prime Minister's Department of Malaysia. (2021). Twelfth Malaysia Plan, 2021–2025. Available online: https://rmke12.epu.gov.my (accessed on 10 June 2025).

Ren, S., Collins, N., & Zhu, Y. (2014). Leadership self-development in China and Vietnam. Asia Pacific Journal of Human Resources, 52(1), 42–59.

Rockwood, K. (2024). How to attract and retain older workers. Available online: https://www.shrm.org/topics-tools/news/hr-magazine/how-to-attract-and-retain-older-workers (accessed on 10 June 2025).

Salleh, K. M. (2012). HRD practitioners' perspectives on competencies: An application of ASTD WLP competency model in Malaysia [PhD thesis]. Colorado State University.

Song, L. T., Nguyen, M. H., & Tran, P. Q. (2020). Barriers to Industry 4.0 Readiness in Vietnam: Policy and Practice. Asian Journal of Technology and Innovation, 15(1), 72–89.

Song, N., Hanh, P., Cuc, M., & Tiep, N. (2020). Factors affecting human resources development of SMEs: Evidence from the fourth industrial revolution in Vietnam. Management Science Letters, 10(12), 2705–2714. https://doi.org/10.5267/j.msl.2020.4.032

Sparrow, P., Brewster, C., & Chung, C. (2016). Globalizing human resource management, 2nd ed. Routledge.

Tien, N. H. (2019). The role of ODA in developing highly qualified human resources in Vietnam. International Journal of Foreign Trade and International Business, 2(1), 1–6.

Tien, N. H., & Anh, D. B. H. (2019). High quality human resource development approach of Vietnamese government. International Journal of Multidisciplinary Research and Development, 6(8), 80–83.

Tien, N. H., Anh, D. B. H., & Thuc, T. D. (2021). Solutions for improving the quality of human resources of Vietnamese industrial enterprises. Linguistics and Culture Review, 5(S1), 1138–1153. https://doi.org/10.37028/lingcure.v5nS1.1508

Tien, N. H., Jose, R. J. S., Ullah, S. E., & Sadiq, M. (2021). Development of human resource management activities in Vietnamese private companies. Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12(14), 4391–4401.

Tourigny, L., & Pulich, M. (2025). Improving retention of older employees through training and mentoring. The Health Care Manager, 25(1).

Tran, H. T., Phuong, T. T., Van, H. T. M., et al. (2021). Human resource development in Vietnam: Research and practice. Springer.

Van Hiep, N. (2021). High quality human resources development. PalArch's Journal of Archaeology of Egypt/Egyptology, 18(4), 3818–3830.

Widarni, E. L., & Wilantari, R. N. (2021). The relationship between human capital development and economic growth: Evidence from Malaysia. Journal of Asian Finance, Economics and Business, 8(6), 641–650. https://doi.org/10.13106/jafeb.2021.vol8.no6.0641

World Bank. (2021). Malaysia economic monitor, June 2021: Weathering the surge. Available online: https://openknowledge.worldbank.org/handle/10986/35762 (accessed on 10 June 2025).