

Human Capital Development and Loan Repayment: A Conceptual Framework for Sustainable Higher Education

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Abstract: In today's competitive job market, obtaining a higher education degree has become a critical requirement for employability. However, many graduates continue to face financial difficulties in repaying their educational loans, largely due to the increasing cost of tuition and other associated expenses. This study examines the role of human resource development (HRD) in enhancing awareness regarding the value of higher education and the significance of loan repayment obligations. By integrating the Cost-Sharing Approach and Human Capital Development perspectives, the study positions its discourse within the Malaysian context, with a particular focus on the National Higher Education Fund Corporation (PTPTN). This localized emphasis provides valuable insights for policymakers seeking to address challenges in education financing and to strengthen sustainable loan repayment practices.

Keywords: Education and loan repayment awareness, cost-sharing approach, higher education loan, human resource development (HRD), human capital development

1. Introduction

Management is a critical organizational function that encompasses planning, execution, and resource optimization (Becker, 1975; Pangetsu, 2007). It plays an essential role in steering organizations by ensuring that resources are utilized effectively and efficiently. Within this framework, human resources serve as a key driver of organizational capacity and productivity. The continuous development of human resources—through education, knowledge enhancement, and behavioral refinement—is fundamental to achieving long-term organizational objectives (Zainal & Ismail, 2012; Bangun, 2010).

Recent studies reaffirm the strategic importance of HRD even in evolving environments, such as shifting post-pandemic work practices and increased reliance on virtual learning (e.g., 2024 study highlights how strategic HRM and organizational culture strengthened resilience amid turbulent conditions; Georgescu et al., 2024).

Human Resource Development (HRD), though relatively new as a field, has gained rapid prominence due to increasing organizational demands and heightened competition (Kareem, 2017). Initially centered around training, HRD has since evolved into a comprehensive approach that integrates individual and organizational learning (Mittal, 2013; Salmi, 2003). Today, HRD functions as a strategic tool to enhance employee competencies, which in turn contribute to overall organizational performance (Ziderman, 2002; Kareem, 2019). Numerous studies affirm that the success of organizations is inherently linked to the skills, knowledge, and experience of their workforce—elements that are nurtured through effective HRD strategies (Gberevbie, 2013).

In light of the increasing demand for specialized knowledge and skill sets, higher education enrolment has grown significantly worldwide (Pfordten et al., 2020; Woodhall, 2001). Higher education plays a transformative role by equipping individuals with the intellectual capacity and professional competence needed to contribute meaningfully to society (Chaiwut et al., 2018). As an investment, education yields substantial economic and social returns for

individuals and nations alike (Blom & Canton, 2004; Psacharopoulos, 1986). Accordingly, many countries—regardless of their economic standing—have implemented policies to provide free or subsidized higher education (Albrecht et al., 1992; Woodhall, 2004; Ziderman, 2013). However, due to mounting fiscal pressures and shifting national priorities, several governments have reduced subsidies and turned to alternative financing models (Baum, 2016; Psacharopoulos, 1986). In recent global trends show a steep rise in student loan debt and the urgency of effective repayment mechanisms, particularly as the estimated total student debt in markets like the U.S. surpassed USD 1.6 trillion by 2023 (Investopedia, 2024)

In Malaysia, the rising cost of higher education prompted the establishment of the National Higher Education Fund Corporation, or Perbadanan Tabung Pendidikan Tinggi Nasional (PTPTN), as a means to provide accessible financing for students from varied socioeconomic backgrounds. Despite such efforts, issues surrounding loan repayment remain prevalent. For instance, as of 2019, Malaysia recorded a substantial number of loan defaults, predominantly among PTPTN recipients who were recent graduates (Yahaya, 2019). The COVID-19 pandemic further exacerbated this issue through repayment moratoriums and economic instability (Khrishnan, 2021). Additionally, the increasing cost of education and a challenging post-graduation job market have shifted the financial priorities of borrowers (Zainal & Ismail, 2012). Economic constraints, particularly related to employment prospects and salary levels, have significantly influenced repayment behavior (Malek, 2019). Moreover, existing literature suggests a correlation between academic performance and repayment discipline (M. Ismail & Hamid, 2015), while psychological stress associated with financial hardship further intensifies the problem (Boyles & Ahmed, 2017).

This paper explores how HRD strategies can be leveraged to address these challenges by fostering financial literacy and cultivating a sense of responsibility regarding loan repayment (Raj, 2023¹), ultimately contributing to a more sustainable model of higher education financing.

2. Problem Statement

The escalating cost of higher education, combined with diminishing public funding, has compelled more than 70 countries to implement cost-sharing models for student loans. These models distribute financial responsibilities among governments, students, parents, and households (Johnstone & Shroff-Mehta, 2003; Salmi, 2003). While cost-sharing mechanisms aim to maintain access to education, student loans have emerged as a critical tool in supporting students from financially disadvantaged backgrounds (Ziderman, 2013). At the same time, the Human Capital Development (HCD) approach has been widely promoted as a means to ensure the financial sustainability of higher education systems by linking investment in education to long-term economic returns (Becker, 1975; Avery & Turner, 2012; Li, 2013).

In the Malaysian context, the National Higher Education Fund Corporation (Perbadanan Tabung Pendidikan Tinggi Nasional, PTPTN) plays a vital role in providing education financing to students across income levels. However, despite its widespread availability, the PTPTN scheme is increasingly undermined by persistent loan repayment issues. Delinquency and default rates remain high, raising concerns about the long-term sustainability of the scheme and its capacity to support future generations of students. While mechanisms such as cost-sharing and public loan schemes are intended to enhance access and equity, the persistently

low levels of financial literacy among borrowers suggest that structural reforms alone are insufficient (Ismail et al., 2023).

What remains underexplored in the existing literature is the strategic role of Human Resource Development (HRD) in addressing these repayment challenges. Specifically, there is a lack of empirical focus on how HRD interventions—such as financial education, awareness campaigns, and capacity-building initiatives—can influence loan repayment behavior among graduates. This study therefore seeks to fill this critical gap by examining how HRD strategies can be leveraged to cultivate financial literacy and enhance awareness of loan repayment obligations. Using the Malaysian PTPTN system as a contextual anchor, the paper aims to offer practical insights for improving educational financing models and promoting responsible financial behavior among student borrowers (Abdullah et al., 2022).

3.0 Literature Review

3.1 Introduction

This conceptual review synthesizes current literature to evaluate the role of Human Resource Development (HRD) in promoting awareness about higher education and loan repayment. To ensure a comprehensive scope, academic databases such as Google Scholar, SpringerLink, Wiley, ScienceDirect, JSTOR, Emerald, Scopus, and EBSCO HOST were utilized to source relevant studies. The selected articles were chosen based on their relevance to the research objectives, with a focus on key themes including HRD, higher education loans, cost-sharing mechanisms, and human capital development.

The review critically assesses empirical findings, research methodologies, and conclusions drawn from existing literature, with particular attention to how HRD can foster educational awareness and influence students' attitudes toward loan repayment. Education is widely recognized as a critical driver of socioeconomic mobility and national development, yielding substantial social and economic returns (Blom & Canton, 2004; Psacharopoulos, 1986; Chang & Sani, 2023). By equipping individuals with knowledge, practical skills, and critical thinking abilities, quality education contributes significantly to both personal growth and societal advancement (Chaiwut et al., 2018; Norazman & Jamil, 2022).

Higher education, in particular, plays a strategic role in national economic development by preparing skilled human capital to meet the demands of future industries (Banju & Wongleedee, 2020; Bloom et al., 2007). However, the escalating cost of tertiary education has placed significant strain on national budgets, leading many governments to implement student loan schemes to enhance accessibility—over 70 countries have adopted such approaches (Johnstone & Shroff-Mehta, 2003; Zainuddin et al., 2023). These schemes are often designed to assist students from lower socioeconomic backgrounds and to promote greater equity in access to higher education.

Despite these efforts, the strategic role of HRD in enhancing loan repayment awareness and facilitating educational accessibility remains underexplored. This literature review synthesizes insights from both global and Malaysian scholarship to assess the potential contributions of HRD in this context. In doing so, it identifies existing gaps in theoretical and practical frameworks while proposing actionable strategies for addressing higher education financing challenges.

3.2 Cost-Sharing Approach

In many developing nations, higher education is traditionally funded through a mix of public subsidies and private resources (Ziderman, 2002). However, as global demand for tertiary education continues to rise, so do its associated costs. This trend has prompted many countries to adopt a cost-sharing model, wherein financial responsibility is distributed between the government, students, and households (Salmi, 2003; Azman et al., 2022). Through this approach, student loan schemes have emerged as a key instrument to bridge the affordability gap—allowing students to invest in their education with the expectation of repayment once they enter the workforce. Such loans empower students with both economic and social capital, enhancing their prospects for higher future earnings (Li, 2013; Woodhall, 2004).

Subsidized loans, in particular, play a crucial role in expanding access for low- and middle-income families, easing financial burdens and improving equitable participation in higher education (Boatman et al., 2014). Cost-sharing arrangements may also involve increased tuition fees, reduced reliance on grants, or a shift from scholarships to low-interest student loans as a means of maintaining financial sustainability (Johnstone, 1986; Johnstone & Shroff-Mehta, 2000; Al-Mamun et al., 2023).

From a human resource development (HRD) perspective, the Competing Values Approach provides a strategic lens for organizations to assess performance. This model posits that no singular measure defines effectiveness and that value-based trade-offs must be acknowledged (Quinn & Rohrbaugh, 1981). In this context, training and development initiatives are critical components of HRD, improving employee competencies and aligning their behavior and mindset with organizational objectives (Raja Abdul Ghafoor Khan, 2011). Systematic investment in HRD not only enhances organizational profitability but also fosters individual growth—demonstrating the interconnectedness of education, competency, and long-term performance (Choi & Yusof, 2023).

Cost-sharing models fundamentally aim to diversify the sources of educational funding by allocating responsibility among stakeholders, thereby reducing overdependence on public subsidies (Ziderman, 2002). These models, particularly student loan systems, enable economically disadvantaged students to access education while deferring payment until they achieve financial stability (Salmi, 2003; Lee, 2024).

In the Malaysian context, the Perbadanan Tabung Pendidikan Tinggi Nasional (PTPTN) is a prominent example of a cost-sharing initiative designed to support students from low-income households. However, persistent challenges—especially those related to repayment behavior and borrower responsibility—highlight the critical need for integrated financial literacy and awareness programmes. As noted by Zainal & Ismail (2012), despite the scheme's effectiveness in broadening access, delayed or defaulted repayments continue to hinder its long-term sustainability. This reinforces the need for HRD-informed strategies that go beyond financial provision and embed values of responsibility, planning, and loan accountability within students (Ramli & Aziz, 2022).

3.3 *Enhancing Accessibility*

Student enrollment in higher education is significantly shaped by socioeconomic status, family financial capacity, and the overall cost of education. Limited household financial resources often become a barrier to accessing quality education, especially among low-income families (Psacharopoulos, 1986; Nordin et al., 2022). Evidence suggests that offering uniform financial assistance across all students is neither efficient nor equitable, given the diverse economic

backgrounds of learners. In response, many countries have implemented subsidized education loan schemes to support capable yet financially disadvantaged students in covering essential educational expenses such as tuition, textbooks, transportation, and living costs (Albrecht et al., 1992; Johnstone & Shroff-Mehta, 2003; Roslan et al., 2023).

Government-backed education loan programs are designed not only to facilitate access to higher education but also to promote social equity by narrowing socioeconomic gaps (Ziderman, 2013). These programs play a dual role: increasing initial enrollment and encouraging persistence and completion among students who might otherwise struggle to afford continued education (Authority, 2008; Callender & Jackson, 2005; Fatih et al., 2022).

Parallel to this, research in Human Resource Development (HRD) has long underscored the significance of HRD practices in enhancing organizational outcomes. Otoo (2018) highlighted how strategic HRD interventions enhance employee competencies, ultimately contributing to improved organizational performance. Alagaraja (2015) similarly found that HRD plays a vital role in achieving strategic outcomes, offering both operational and strategic advantages. Advancements in HRD theories and practices allow organizations to achieve competitive advantages by strengthening service delivery and productivity (Alagaraja, 2014; Chen et al., 2023).

In the context of education, improving accessibility requires more than financial aid—it necessitates equipping borrowers with the skills and knowledge to manage their finances effectively. While schemes like Malaysia’s PTPTN have significantly expanded access for students from disadvantaged backgrounds, repayment challenges continue to undermine their sustainability. Thus, targeted HRD strategies can help bridge this gap by fostering financial literacy, personal responsibility, and repayment awareness among student borrowers (Zakaria et al., 2023).

3.4 Human Capital Development Approach

Investments in education, training, healthcare, and other productivity-enhancing activities are considered vital components of human capital development. While these investments are not always captured in traditional national income accounting, they have a profound and measurable impact on economic productivity (Anthony et al., 2013; Noor et al., 2022). According to Human Capital Theory, higher education is viewed as a direct investment in enhancing individuals’ skills, employability, and readiness for the job market (Becker, 1975). Education is regarded as an input that yields long-term returns through increased productivity and economic output (Li, 2013; Schwartz & Finnie, 2002).

Formal sector employment, typically associated with higher salaries and job security, often requires advanced education and specialized knowledge (Ismail, 2001; Mueller & Rockerbie, 2004; Schultz, 1963). As such, investments in human capital are justified when the long-term benefits—such as increased income, social mobility, and enhanced career prospects—outweigh the short-term costs of education (Robert, 1980). These positive returns have made higher education a strategic investment, especially for young individuals seeking to improve their quality of life and future opportunities (Lee et al., 2014; Kumar et al., 2023).

Educational loans serve as a critical tool in advancing human capital development. By enabling students to pursue tertiary education, such loans help cultivate a more skilled and educated workforce. Empirical studies consistently show that higher education improves individuals’ life outcomes and contributes positively to broader social and economic development (Hamzah et al., 2023). Access to educational loans is therefore fundamental in sustaining educational

progress and fostering national growth. These financial instruments support government initiatives aimed at building a knowledgeable, innovative, and economically productive population.

Human Resource Management (HRM), a foundational element of Human Resource Development (HRD), has gained increasing relevance in higher education institutions. Universities, facing growing demands for quality service delivery and financial sustainability, are adopting HRM practices to enhance efficiency, reduce costs, and align with institutional goals (Smeenk et al., 2009; Caryn Cook, 2014; Alwi et al., 2022). Through strategic HRM, universities can better address resource limitations while maintaining high standards of academic delivery (Farnham, 2010). Scholars argue that effective HRM policies enhance academic quality, staff performance, and the overall learning environment by fostering knowledge-centric ecosystems (Edgley-Pyshorn & Huisman, 2011; Waring et al., 2013; Rahim & Awang, 2024).

In the Malaysian context, the PTPTN loan scheme plays a vital role in funding human capital investments. Leveraging HRD strategies to promote financial literacy among borrowers can encourage more responsible financial behaviour and improve repayment rates (Ismail et al., 2021; Tan & Shukor, 2022). As part of a broader human capital development strategy, educational loans like PTPTN are essential for empowering future generations to contribute meaningfully to national development.

3.5 Financial Sustainability in Higher Education Institutions

Achieving financial sustainability is crucial for higher education institutions, as it ensures their ability to support development, operations, research, and innovation over the long term. To attain sustainable financial management, institutions must secure internally generated revenue streams that are stable and less reliant on future government subsidies (Afriyie, 2013; Mussa, 2015; Khalid et al., 2023). Although public funding remains a primary source of income for many institutions, increasing competition for limited resources and a global trend of declining state support have put this model at risk (Ziderman, 2013; Musa & Latif, 2022).

Student loan schemes play a vital role in this context. By increasing tuition-related revenue, these programs strengthen institutional financial viability while expanding access to education. In addition to student loans, many institutions are pursuing diversified income-generating strategies, including intellectual property commercialization, consultancy services, endowment funds, and collaborations with industry partners (Njenga, 2014; Alraouf & Hassan, 2023). These diversified revenue models contribute to institutional resilience, enabling higher education institutions to operate independently and adapt to changing economic conditions.

Strategic financial planning is essential to ensure long-term institutional sustainability. While Human Resource Development (HRD) is recognized for its role in enhancing workforce competencies and organizational outcomes, its strategic contribution to financial planning remains underexplored. The impact of HRD on institutional financial health is often underestimated, partly due to management's limited perception of HRD's economic value (Herling & Provo, 2000; Nurhaliza & Salleh, 2022). Nonetheless, HRD professionals can serve as strategic advisors, offering insights into initiatives and programs that align talent development with financial objectives. However, many HRD practitioners may be reluctant to engage in strategic financial discourse due to their developmental rather than financial orientation (Ruona & Swanson, 1998; Akhtar et al., 2023).

Ultimately, the financial sustainability of higher education institutions hinges on effective cost management, diversified income streams, and strategic planning. Loan schemes such as Malaysia’s PTPTN serve as a critical funding mechanism, but their long-term viability depends on consistent repayment behavior among borrowers. By integrating HRD initiatives—particularly those focused on financial awareness and repayment responsibility—institutions can contribute to more sustainable financing ecosystems (Ismail et al., 2021; Rahman et al., 2024).

4.0 Proposed Conceptual Framework

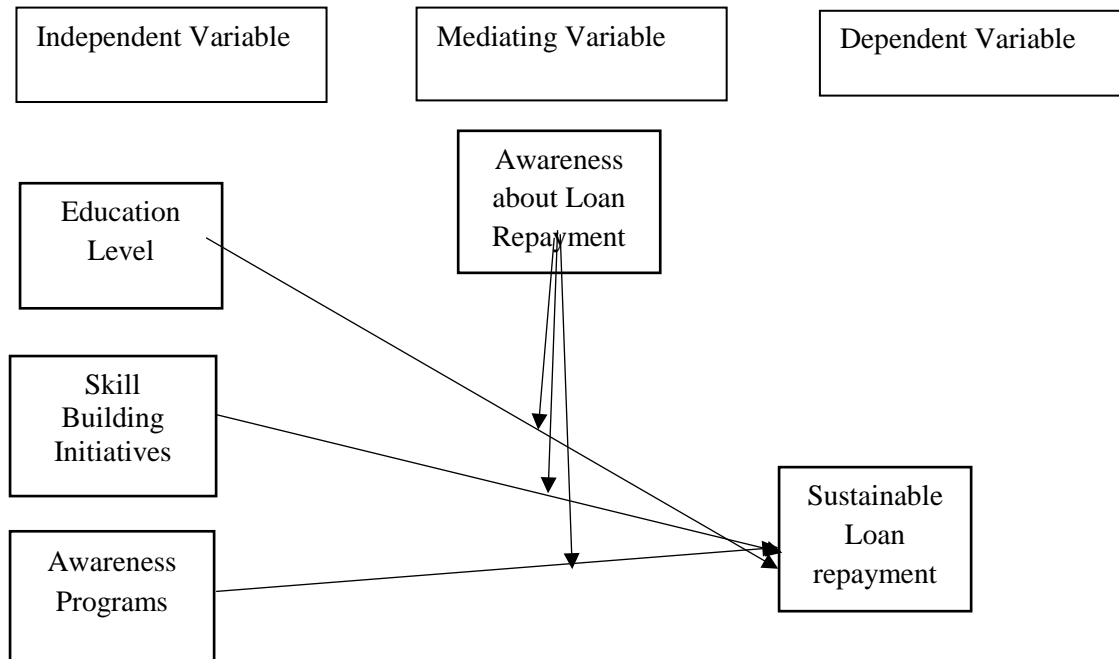


Figure 1: The Proposed Conceptual Framework

The conceptual framework of this study explores the interrelationship between key variables influencing sustainable loan repayment in the context of higher education. Specifically, it positions education level, skill-building initiatives, and awareness programs as the independent variables; awareness about loan repayment as the mediating variable; and sustainable loan repayment as the dependent variable.

Education level reflects the academic background and qualifications of borrowers, which are likely to influence their financial decision-making processes, awareness levels, and attitudes toward loan repayment.

Skill-building initiatives refer to structured training programs and interventions aimed at improving borrowers’ financial literacy, budgeting skills, and employability—elements essential to economic self-sufficiency and responsible repayment behavior.

Meanwhile, awareness programs include targeted campaigns and educational efforts designed to enhance borrowers’ understanding of loan terms, repayment schedules, financial obligations, and the consequences of default.

Together, skill-building initiatives and awareness programs serve as crucial mechanisms for developing financial knowledge and promoting responsible financial behaviors. These variables reflect the broader influence of human capital development in shaping responsible attitudes towards financial commitments, particularly within the context of student loan repayment.

The mediating variable, awareness about loan repayment, functions as a bridge connecting the independent variables to the dependent outcome. It plays a central role in reinforcing the importance of timely and consistent repayment behavior by enhancing borrowers' comprehension of their responsibilities.

Finally, the dependent variable, sustainable loan repayment, is defined as the consistent and timely repayment of educational loans, which is essential for ensuring the long-term financial viability of national loan schemes such as PTPTN.

This framework posits that education level, skill-building initiatives, and awareness programs exert both direct and indirect effects (through the mediating variable) on borrowers' ability and willingness to repay loans sustainably. By emphasizing the role of human capital development, this model offers valuable insights into strategies that can support the sustainability of student loan programs in Malaysia and beyond.

5.0 Rationale for the Conceptual Framework

The conceptual framework proposed in this study is anchored in Human Capital Theory (Becker, 1975), which posits that investments in education and skill development yield long-term economic returns by enhancing individual productivity, employability, and earnings potential. The inclusion of education level as an independent variable reflects the established association between academic attainment and financial behavior, particularly in terms of debt management and repayment capability (Schwartz & Finnie, 2002; Lee et al., 2014).

Skill-building initiatives, often implemented through structured training and development programs, are widely acknowledged for their role in improving financial literacy, employability, and decision-making. Empirical studies indicate that financial literacy programs contribute significantly to individuals' capacity to manage budgets, savings, and loan repayments (Ismail et al., 2021; OECD, 2020; Lusardi, 2022). Moreover, interventions aimed at improving financial awareness have been shown to reduce delinquency rates and encourage informed borrowing decisions (Zhang & Hu, 2022; McCann, 2023).

Awareness about loan repayment functions as a mediating variable that connects educational inputs (such as skills and knowledge) with behavioral outcomes. When awareness is high, borrowers are more likely to internalize their financial responsibilities, practice prudent financial behavior, and meet their repayment obligations on time. This is particularly important for the long-term sustainability of government loan schemes, including Malaysia's PTPTN (Ziderman, 2013; Khrishnan, 2021).

Finally, the ultimate outcome—sustainable loan repayment—represents the success of a well-integrated system of education, financial literacy, and borrower awareness. This study is further justified by recent literature that underscores the value of strategic Human Resource Development (HRD) in fostering responsible financial behavior, especially in post-pandemic

recovery contexts (Kareem, 2017; Alagaraja, 2015; Ahmad & Sabri, 2023). Hence, this conceptual framework offers a holistic and strategic lens to explore how HRD efforts can reinforce loan repayment culture and secure the financial sustainability of national education financing models.

6.0 Conclusion

Higher education is universally recognized as a cornerstone of both individual advancement and broader socioeconomic development. Its transformative power not only improves quality of life but also drives long-term national progress. However, the escalating cost of tertiary education and diminishing public subsidies have compelled many countries to adopt cost-sharing mechanisms, including student loan programs. These initiatives enable students from underprivileged backgrounds to access higher education through manageable repayment schemes, thereby promoting both equity and financial sustainability.

Student loan programs are increasingly viewed as pragmatic tools for financing higher education. They serve a dual purpose: expanding access to education and ensuring the financial resilience of higher learning institutions. When properly designed, such programs support human resource development (HRD), cultivate financial literacy, reduce default rates, and empower students to assume responsibility for their financial commitments. Nonetheless, their effectiveness is highly dependent on each country's unique socioeconomic, political, and institutional contexts—underscoring the necessity for complementary strategies, particularly those grounded in HRD.

Human resources remain a critical enabler of institutional success. Competent, ethical, and knowledgeable personnel are essential for institutions to fulfil their missions and contribute meaningfully to society. HRD strategies play an integral role in fostering these capabilities. In the context of education financing, HRD can be effectively leveraged to enhance awareness of loan obligations, develop financial competencies, and foster a culture of responsible repayment. Interventions that incorporate ethical training, financial education, and skill-building not only benefit individual borrowers but also strengthen institutional sustainability and credibility.

This conceptual paper proposes a framework in which education level, skill-building initiatives, and awareness programs act as antecedents to sustainable loan repayment—either directly or indirectly through the mediating role of repayment awareness. Grounded in the Malaysian PTPTN context and informed by global perspectives on cost-sharing and human capital development, the framework presents a holistic strategy for strengthening student loan systems.

Looking ahead, future empirical studies are recommended to test and validate this framework across different educational and cultural contexts. Such efforts will help refine policy strategies, improve repayment behaviour, and ultimately advance a more sustainable and inclusive higher education financing ecosystem.

Based on the findings and propositions of this study, several policy implications are evident. Firstly, higher education institutions should embed HRD-driven financial literacy modules into student orientation or graduation readiness programs. These modules should equip students not only with knowledge of loan obligations but also with practical budgeting and financial planning skills tailored to the Malaysian context. Secondly, stakeholders such as PTPTN and

the Ministry of Higher Education should collaborate on strategic awareness campaigns—utilizing behavioral nudges, digital platforms, and alumni testimonials—to foster responsible repayment behaviour. Lastly, universities should institutionalize feedback mechanisms to evaluate the effectiveness of HRD interventions in shaping students’ financial attitudes and repayment behaviour. These insights can inform continuous improvements and evidence-based policymaking.

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