

Sustainable Development Goal 4 Quality Education: Implications on higher educational institutions in Malaysia

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DOI: <https://doi.org/10.5281/zenodo.13333099>

Published Date: 16-August-2024

Abstract: The purpose of this conceptual paper is to examine the implications of Sustainable Development Goal 4 (SDG4) Quality Education on higher educational institutions (HEIs) in Malaysia. Secondary research was conducted to establish a conceptual framework; relevant articles were downloaded via Google Scholar, ResearchGate, ERIC, Science Direct, JSTOR and other websites. Several issues and challenges in relation to SDG 4 were identified. In light of the secondary findings and implications, some recommendations are made on what measures HEIs could undertake to promote SDG 4 more effectively.

Keywords: Issues and challenges of SDG 4, Malaysia, quality education, higher educational institutions, HEIs, PHEIs, Sustainable Development Goal 4.

I. INTRODUCTION

With the global emphasis on sustainability, higher educational institutions (HEIs) in Malaysia are required to uphold SDG 4 Quality Education by increasing educational accessibility, instilling a culture of inclusivity and establishing an environment that is conducive for teaching and learning (En, 2023). It is particularly critical for HEIs to ensure equal access to tertiary education by providing educational, entrepreneurial and vocational training programs for all, including persons with special needs and indigenous people in line with Target 4.5 of SDG 4.

Despite the mushrooming of HEIs in Malaysia, there are still many youths who cannot afford the basic facilities and resources to get quality education, including textbooks, reference books, laptops and writing materials. Moreover, most HEIs are located in the urban areas; hence, youths from rural and low-income areas often lack the financial means to pursue quality higher education due to the insurmountable gap caused by the rural-urban divide. To bridge the gap, HEIs need to play their part by introducing effective environmental, social and governance initiatives (UNICEF Malaysia, n. d.). The purpose of this conceptual paper is to examine the implications of Sustainable Development Goal 4 Quality Education on HEIs in Malaysia. Secondary research was conducted to establish a conceptual framework and research gap using relevant articles downloaded via Google Scholar, ResearchGate, JSTOR and other websites.

II. REVIEW OF LITERATURE

A. Poverty rates in Malaysia

All youths should receive the same opportunities to fulfill their potential and develop into productive members of society and contribute to the socioeconomic development of Malaysia (UNICEF Malaysia, n. d.). However, in 2020, the number of households living below the absolute poverty line increased to 639.8 thousand, while the number of households living in extreme poverty rose to 78,000 in Malaysia. The number of non-citizen households living in poverty was unknown, but it was expected to be significantly higher than for Malaysian citizens. To promote SDG 4, HEIs need to focus on wellbeing, social inclusion and disparity reduction, while enhancing engagement and partnerships for youths' educational rights. They can support social policy work in Malaysia through (1) research, including data collection, data analysis and publication of journal articles, reports, booklets and books, (b) knowledge dissemination by organizing conferences, seminars and publication of articles and (c) alliances and partnership with different institutions, academics, policy analysts, social scientists, policy makers, leaders, diplomats and social figures both at the national and international level.

B. Low proficiency in Mathematics and English

Although Malaysia has made progress in higher education, the nation still faces several obstacles in achieving SDG 4 targets (Hanim, 2023). The recent Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment revealed that, while Singapore was rated second in the world for mathematics, science and reading, Malaysia was placed 48th, 48th and 57th, respectively. Moreover, 90,000 out of the 373,974 students who took the Sijil Pelajaran Malaysia (SPM) test in 2022 failed mathematics, while over 52,000 failed English, indicating that secondary school leavers have low proficiency in Mathematics and English. Since mathematics and English are crucial for measuring socioeconomic performance and for advancing science and technology, HEIs should enhance English language proficiency by offering teacher preparation programs and the use of innovative educational technology to boost reading and speaking as generic attributes. Although Malaysia has made significant strides in terms of literacy and teacher credentials, a scarcity of competent teachers continues to plague the nation's educational milieu, particularly in the rural areas. HEIs can encourage more youths to enter the teaching profession by stressing the value and roles of teachers in society. They can also assist teachers to achieve professional growth through lifelong education by pursuing Master and PhD degrees in education and other schemes for career development.

C. High dropout rates

According to SDG 4, every student has an equal right to an education ((UNICEF Malaysia, n. d.). However, many Malaysian students tend to drop out of school because they are still unable to read by Standard Five. Since reading is an essential academic skill, these students will not be able to leverage their reading ability to complete secondary school, let alone joining an HEI. Moreover, 18 percent stop schooling before completing Form Five, reflecting the flaws of the nation's educational system (Hanim, 2023). To ensure that no youth is left behind, HEIs can become more comprehensive and egalitarian in order to provide quality education, for example, by offering more teacher training courses. They can also offer matriculation courses to prepare secondary school graduates for a seamless transition into higher education.

D. Empowering people through quality education

One of the most efficacious ways to eradicate poverty and achieve socioeconomic progress is by empowering people through quality education; SDG 4 emphasizes inclusive and equitable, quality education and lifelong learning opportunities for all (Putra, 2022). Zooming into Malaysia's benchmark and targets set for 2025 and 2030, HEIs can strive to achieve such targets, including college completion rates and the provision of high-calibre academics. In 2005 and 2019, only 27 and 62 percent of students completed upper secondary education, respectively. It is therefore reasonable and prudent for HEIs to target upper secondary leavers in 2025 at 62.5 percent, and another 67.4 percent in 2030. To improve student outcomes and overall education quality, it is imperative for HEIs to improve teaching quality. Moreover, one of the primary indicators of SDG 4 is trained professionals, which requires HEIs to provide the impetus to empower academics that can make higher education more learner-centric and innovative.

F. Critical aspects of quality education

According to Dignity for Children (2023), SDG 4 underscores the role of quality education designed to foster creativity, critical thinking and problem-solving skills. Quality education is a powerful tool for breaking the cycle of poverty because it can help improve socioeconomic opportunities, increase social mobility and promote a range of positive outcomes, such as better health, improved gender equality and reduced crime rates. By providing quality education, HEIs enable youths from disadvantaged backgrounds to construct a brighter future, while freeing themselves from various socioeconomic constraints. HEIs should adopt learner-centred approaches to teaching and learning that allows students to learn at their own pace and according to their own interests, which can help foster a perpetual appreciation for learning. Additionally, HEIs can offer diploma and degree programs, as well as other recognized qualifications that prepare individuals for lifelong education or employment. They can design a wide range of courses, including social sciences and humanities, entrepreneurship and languages, which meet the needs of individual students and the greater community. Additionally, HEIs can offer vocational training and upskilling opportunities that go beyond just classroom instruction by providing students with practical, real-life training in the form of apprenticeships and internships. By immersing in these real-life settings, students can gain pragmatic experiences that prepare them for the corporate world.

Quality education is holistic and should go beyond cognitive development; it can also focus on developing psychomotor strength through sports (Dignity for Children, 2023). HEIs can implement sports programs that offer regular physical activities and competitions that aim not only to augment physical fitness, but also to instil discipline and teamwork. Through sports, students can learn the importance of commitment, perseverance and respect for themselves and others. Moreover, psychomotor activities often provide a secure and inclusive space that motivates students to play, have fun and simply be themselves. By emphasizing the values of sportsmanship and fair play, HEIs not only contribute to the overall wellbeing of students, but also equip them with survival skills that extend beyond the sports field.

G. An equitable level of education for all

According to the American Malaysian Chamber of Commerce (2024), one of the major issues faced by the Malaysian education landscape is the provision of education for millions of youths, while planning an equitable level of education for all. Therefore, HEIs should be cognizant that, while urban students can afford innovative educational technologies, enjoy the benefits of modern infrastructure and achieve in a favourable learning environment, a majority of their rural peers usually lack Internet connectivity, user-friendly facilities and laboratory equipment, besides being hindered by low household income, low literacy and low societal expectations. HEIs can step in by using SDG 4 as a framework to provide the best tertiary education possible. From a business perspective, by investing in quality education, HEIs can supercharge their potential talent pool, while avoiding the sidelining of market opportunities due to talent constraints.

H. Lifelong learning via physical and electronic means

Lifelong learning by way of SDG 4 is a long-term commitment to providing continuous education, skills development and knowledge enhancement beyond formal academic degrees (Universiti Teknikal Malaysia Melaka, 2024). HEIs should be designed to foster a culture of lifelong learning, upskilling and reskilling to cater to the evolving needs of individuals and society in an everchanging world. HEIs can augment lifelong learning by offering online courses via various digital platforms or their own learning management systems. Their courses can cover a broad array of courses that can be accessed by the public, which include open educational resources, such as lecture notes, presentations, and other resources that are readily assessable for independent learning. Further, their libraries should offer not only printed media, but also such electronic resources as e-books, e-journals and databases. Lastly, to provide lifelong education and professional development, they can offer part-time classes, seminars or workshops covering a range of subjects.

Additionally, lifelong learning can be implemented via collaborations with industry players (Universiti Teknikal Malaysia Melaka, 2024). HEIs can collaborate with industry partners to provide workshops, talks or seminars aimed at fostering lifelong learning and skill development in specific fields or industries. Collaborative initiatives include research projects aimed to address practical issues, solve problems or develop new technologies relevant to the involved stakeholders. Further, they can offer consultancy services, whereby faculty members or researchers can provide advice, guidance or expertise to external organizations, which help promote problem-solving, enhance processes, or improve efficiency. Lastly, lifelong learning can be implemented via knowledge transfer programs (Universiti Teknikal Malaysia Melaka, 2024). PHEIs can

organize training sessions, workshops or seminars tailored to the needs of external stakeholders, focusing on sharing specific skills, knowledge or technological advancements they have developed. Moreover, they can facilitate the transfer of technologies, patents or intellectual property that they have developed to industry partners for commercial or practical applications.

I. 50th SEAMEO Council Conference, 2019

During the 50th SEAMEO Council Conference in 2019, speakers focused on several SDG 4 issues in relation to inclusive and lifelong education, educational technology and educational partnerships and collaborations (Southeast Asia Primary Learning Metrics, 2019). First, with regards to inclusive education and lifelong learning, many Southeast Asian countries are lagging behind in term of achieving SDG 4 targets and are speculated not being able to meet them by 2030 with their current practices. Therefore, HEIs should interpret change and act according to the challenges of current times and shifting demands in the job market. Second, in terms of educational technology, they can leverage on artificial intelligence (AI) and machine learning to promote quality and equitable education; they also should ensure the ethical, inclusive and equitable use of AI in education, prepare graduates to adequately live and work with AI and use AI to enhance or reinvent education. Third, in terms of educational partnerships and collaborations, they need to formulate a clear vision and adopt effective leadership to collaborate with different sectors to (1) drive inclusive education through the use of digital technology, (2) introduce policies to help bridge the digital divide, (3) pursue digital transformation through informed policymaking, as well as (4) construct an innovative educational ecosystem to pave innovative ways of learning and teaching.

J. Malaysian Education Blueprint

Balakrishnan (2021) reiterated that SDG 4 is embedded into the Malaysian educational system via the Malaysian Higher Education Blueprint that aims to promote academic excellence by addressing the quality and efficiency that impact the Malaysian higher education landscape. HEIs are required to assume the critical role in developing socially and culturally appropriate values, behaviours and attitudes toward sustainability so that graduates will not only help achieve SDG 4 targets, but will also ensure their continuity and progress. Moreover, MQA requires that all undergraduate programs to prioritize the values, knowledge, skills and generic attributes needed to attain global sustainability. Therefore, HEIs need to empower students to make ethical and moral decisions and actions in terms of SDG 4 by displaying a deep commitment in fostering the socioeconomic elements of sustainability. Additionally, HEIs need to interpret SDG 4 in a wider environmental context by exposing academics and other stakeholders to the authentic meaning of sustainability by underscoring the cruciality of gender equality, sustainable socioeconomic ventures and poverty eradication through a viable and innovative curriculum geared toward quality education.

K. Global framework of SDG 4

Kestin et al. (n. d.) elaborated that SDG 4 offers a global framework to organizations with strong buy-in from the government, business, civil society, funders, other institutions and the community. HEIs that proactively engage in SDG 4 can increase their impact, relevance and rankings because it provides an integrated way for them to liaise with such external stakeholders as the government, funders and the community to promote global wellbeing. HEIs can also capture the market for SDG-related education, which appeal to global-minded individuals aiming to create a better world. Lastly, by emphasizing SDG 4 as a strategic focus, HEIs can increase the demand for, and produce, graduates who can demonstrate greater insight into the nation's agenda for socioeconomic and environmental sustainability.

In addition, Kestin et al. (n. d.) posited that SDG 4 enables organizations to establish new internal and external partnerships because it provides a common framework for various sectors and organizations to build on shared interests. It creates opportunities for HEIs to form new collaborations with the government, industry and the community in teaching, research and community service. The framework also allows HEIs to establish cross-disciplinary partnerships, collaboration and innovation. Further, SDG 4 enables HEIs to access new funding streams, government agencies, international banks and philanthropists, which prompts them to function as comprehensive, globally-conscious entities. As a moral imperative, SDG 4 empowers HEIs to increasingly modify their roles in confronting the issues and challenges of the 21st century by acting as change agents who can better serve the global community.

L. SDG 4 and private HEIs

According to Kooser (2021), there has been an increase in the prevalence of private institutions in developing countries, thus offering an alternative that helps overcome the issues associated with accessibility, quality and sustainability. With regards to accessibility, private HEIs encourage entrepreneurs to identify and address market opportunities because they have the financial services to become more accessible to youths who have been excluded from government universities and colleges. Further, PHEIs make it possible for girls to obtain a college education, thus moving the nation closer to the SDG 4 targets by eliminating gender disparities in education and building and upgrading education facilities that are child, disability and gender sensitive.

Kooser (2021) reiterated that private education statistically enhances the quality of education, which is an SDG 4 target in, and of, itself. Private HEIs often provide a more favourable learning environment with better qualified academics. Moreover, academics at private HEIs are subject to the same standards as other private sector employees, and are expected to demonstrate high professionalism to keep their jobs. At private HEIs, academics are accountable to the upper management who can terminate their service any time, while parents can also withdraw their children's enrolment. Additionally, private HEIs often have a longer academic year, greater instructor-student engagement and higher instructor presence. Because of their position in the private sector, private HEIs are in a unique position to serve as a testing ground for innovative educational initiatives that can revolutionize the access and quality of tertiary education. Even though private HEIs tend to charge more, they are more likely to ensure a high-quality education, which increases parents' willingness to enrol their children there. Lastly, many private HEIs have responded to this trend by offering more loans, scholarships, stipends and internships, which spread out the financial burden over the academic year so that parents are able to budget and pay in instalments.

M. Private HEIs and Malaysian Quality Assurance (MQA)

While private institutions have notable benefits in educating youths and achieving SDG 4, they have to deal with several challenges, including affordability and stringent government regulations (Kooser, 2021). First, private higher educational institutions (PHEIs) in Malaysia need to guarantee the quality of their courses; they are required by the Malaysian Quality Assurance (MQA) to develop metrics that track academic performance to ensure calibre and growth. Second, since they are driven by private market economics, they often need to raise their tuition fees, thus pricing out youths with low socioeconomic status. In order to maintain affordable cost and high quality, PHEIs can implement customized tools and programs, while making larger infrastructural investments without dramatically raising costs. Overall, to address and contribute to SDG 4 targets, private HEIs need to improve access to quality education by helping youths become knowledge workers and entrepreneurs, promoting education for women and marginalized youths and utilizing resources and facilities that are gender sensitive, secure and inclusive.

N. Greater sustainability of private HEIs

Perhaps the greatest argument for private education in the developing world is the fact that it is highly sustainable (Kooser, 2021). In Malaysia, private HEIs often operate within the broader economy; hence, they need to respond to ever-changing market needs and deliver excellent services to thrive. Besides state-of-the-art facilities, they try to uphold a marketplace that is highly accountable to student needs and achievement. With the autonomy for perfect competition and familiarity of the local needs and requirements, many private HEIs are able to achieve notably better educational outcomes and higher graduate employability than their public counterparts by utilizing sustainable financial tools and models that can be replicated all the time.

III. IMPLICATIONS AND RECOMMENDATIONS

A. Partnerships with the industry and community

In order to promote SDG 4, Sharma (2022) quoted several educational leaders who have pinpointed that HEIs should establish partnerships with the industry and the community. First, HEIs need to go beyond institution-to-institution partnerships by collaborating with the industry, civil society and other organizations that can ensure inclusive and equitable quality education because they are more capable of addressing the more encompassing societal, regional and international issues than single-sector initiatives. Further, educational partnerships not only can help HEIs confront real-world challenges,

but they also augment socioeconomic progress and human development by creating a more peaceful and sustainable global community. Additionally, partnerships have become more significant than ever before because they are the prime enablers needed to instil a common commitment toward a common future. Second, to design teaching and learning programs that are relevant to, and aligned with SDG 4, HEIs can form mutually beneficial educational partnerships with employers, industry, professional bodies and international organizations to ensure that their offerings are globally aligned and locally appropriate. In short, HEIs should adopt SDG-driven content and pedagogy as a catalyst to conduct evidence-based research and adopt good practices and initiatives that can attract greater public investment.

Some educational leaders have stressed that educational partnerships are particularly important for tackling broader societal challenges caused by the pandemic (Sharma, 2022). While SDG 4 plays a pivotal role in eliminating socioeconomic disparities through inclusivity and sustainable development, it has also become more prominent in promoting global recovery. It also encourages HEIs to undertake innovative ventures to bring hope and protection to individuals impacted by humanitarian crises and forced displacement by (1) re-conceptualizing the future of tertiary education amidst climate change, international conflicts, dwindling natural resources and various socioenvironmental problems and (2) turning students into ground-breakers, world citizens and innovative problem-solvers to create a more equitable and sustainable society.

B. Learning and teaching, research, governance and external leadership

Higher education has a significant role in promoting SDG 4 through teaching, research, community service, organizational governance and external leadership (Kestin et al., n. d.). First, HEIs can equip students with the knowledge, skills and motivation to synthesize and address the SDG targets by emphasizing comprehensive academic or vocational expertise to effectively implement solutions. They can (1) provide accessible, affordable and inclusive education to all, (b) increase capacity building for students (c) train more professionals and (d) mobilize youths to engage in critical problem-solving. Second, research-wise, HEIs can provide the necessary databases, technologies, pathways and innovations to accelerate the implementation of SDG 4 targets among the global community. Further, they can (1) adopt both traditional disciplinary approaches and newer interdisciplinary, transdisciplinary and sustainability science approaches, (b) provide capacity-building to undertake and apply research, (c) collaborate with, and support, innovative organizations to plan SDG 4 initiatives, (d) improve diversity in research and (e) train students for sustainable development research. Third, HEIs can promote SDG 4 through governance structures and operational policies and decisions that are related to employment, finance, campus services, support services, facilities, procurement, human resources and student administration. Lastly, HEIs can practise external leadership by (1) strengthening public engagement and participation in addressing SDG 4, (2) initiating and facilitating cross-sectoral dialogue and action and (3) underscoring the role of higher education in national development, environmental conservation, globalization and world peace.

C. Readiness for sustainable education

Zhao and Cheah (2023) who examined the readiness of sustainable education among Malaysian academicians found that their unreadiness is often influenced by several factors, including a lack of knowledge and skills, time, funding and personal motivation. In view of these setbacks, HEIs need to prepare longer-term training, professional development and policy aid for academics to promote sustainable education. Moreover, they need to equip youths with appropriate education and attitudes that reinforce the knowledge and traits that are associated with a successful and fulfilling life. Furthermore, HEIs can pinpoint such issues as environmental preservation, social justice, economic growth and peace building, which are pivotal to sustainable development. Due to the global impact of human activities and the increasing interdependence on this planet, HEIs need to brainstorm innovative solutions to satisfy human needs and wants by adopting a circular paradigm that conserves resources using advanced technologies, efficacious business structures and ecofriendly approaches to production and consumption. Lastly, HEIs should equip graduates with the knowledge, skills and values required to lead environmentally and socially responsible lives, while integrating the environmental, social and economic dimensions of sustainability into all aspects of academia.

D. Humanizing education

Hakim (2023) reported the Malaysian Ministry of Education has introduced humanizing education that aims to ensure that no child is left behind in having access to quality education. Humanizing education plays a crucial role in advancing national

development by shaping youths into well-adjusted, morally grounded and proactive contributors in the nation's socioeconomic growth. It promotes inclusivity and caters to the diverse needs of students, including those with special needs and from marginalized backgrounds, which resonates with SDG 4 that ensures that every child has access to quality education, regardless of who and where they are. Therefore, HEIs should strive to boost opportunities for quality education among youths who face socioeconomic barriers, including those who are stateless.

Hakim (2023) added that the Ministry of Education has stressed that humanizing education not only addresses disparities in terms of educational access and inclusivity, but also focuses on character and values-driven education to develop holistic individuals. First, humanizing education is in line with the growing importance of digital literacy and educational technology. Second, besides reaffirming their commitment to providing quality education for all, regardless of their backgrounds or abilities, HEIs should instil amongst students the moral and ethical values needed not only to excel in academics, but also to become diligent, autonomous and upright citizens. Lastly, to bridge the digital divide, HEIs should increase efforts in providing Internet access and other digital devices to students in remote and rural areas so that they can have access to quality education.

E. Businesses and the civil society

To promote SDG 4, businesses and the civil society also play a principal role in implementing innovative, localized solutions and act as the conduit across all parties (Bazari, 2023). Consequently, HEIs need to set appropriate targets and ensure that all initiatives are aligned with their finance and business models. Additionally, they should ensure that they have sufficient long-term capital so that investors can have more value for their money. In other words, it is recommended that they use their financial influence to drive long-term, socially useful value creation in the nation. Further, HEIs can price their capital according to the authentic costs of higher education by factoring in the social and environmental risk factors in their capital cost. They can also use their influence to innovate their financial structures to ensure that they can continue to fulfil the needs and interests of society. They can also set bold evidence-based targets, while assessing and reporting their progress to ensure transparency. Lastly HEIs can embed sustainability into their practices and decisions by demonstrating innovative ways of thinking in their operational practices and decision making. They can also align their organizational purpose, strategy and business models that are explicitly implemented to augment students' lives, whilst operating within the boundaries of the community, environment and planet.

F. Multifaceted roles of businesses

As mentioned before, businesses should strive to reduce poverty, promote socioeconomic growth and development, while creating a more just and equitable society (Bernard Business Consulting, 2024). They can involve themselves in education for sustainable development, capacity building, job creation and youth employment by (1) investing in education, (2) promoting science, technology, engineering and mathematics (STEM) and (3) creating entrepreneurship programs. HEIs can invest in education in many forms, such as funding schools or universities, offering scholarships or bursaries for students or investing in research and development in education. By investing in education, HEIs can ensure that all individuals have access to quality education and the opportunity to reach their full potential. HEIs can also promote STEM, which is increasingly vital in the knowledge economy. They can fund STEM programs by (1) offering internships or other lifelong opportunities for students to gain experience in various STEM fields and (2) partnering with organizations to develop STEM curricula. By promoting STEM, HEIs ensure that students are prepared for careers in high-growth fields. Further, by providing entrepreneurship training and resources, HEIs can help individuals and communities to gain the skills and knowledge needed to create and grow their own businesses and generate income and improve their standard of living.

Additionally, businesses can also promote SDG 4 by (1) developing cost-effective education services and products and (2) providing employees with continuous learning and development opportunities (Bernard Business Consulting, 2024). First, HEIs can utilize educational technology and know-how to design and create cost-effective education products and services to increase access to education for youths or working adults. For example, they can provide such services and products as online courses, e-books and other digital resources that are affordable and accessible to a broader range of learners. Second, by providing employees with continuous learning and development opportunities, HEIs can directly encourage lifelong learning by providing continuous learning and development opportunities, which are essential to help individuals expand their skills, and to promote innovation and creative problem-solving within the organizations.

G. Quality education as a culture and lifestyle

To promote SDG 4, education should be regarded as a culture and lifestyle rather than just a vocation or an obligatory phase (Bazari, 2023). HEIs should not only limit themselves to tertiary education, whilst in reality learning is a life-long journey. Instead, they can pioneer system interventions that aim at improving educational leadership and pedagogy to maximize student potential and parents and community involvement. Additionally, they can increase community empowerment to increase participation from all segments of society, especially those from rural and marginalized communities. They need to manage socioeconomic and environmental issues via community-based approaches where multiple interventions can be used to drive leadership at grassroots level. HEIs also have the ethical and moral responsibility to promote greater social justice and progress through transformative leadership, which is more effective in tackling issues associated with climate change, food security, resource scarcity and war and displacement.

H. Quality education for pro-environment behaviour

Kanowski, Yao and Wyatt (2019) asserted that pro-environment behaviour is the golden thread linking quality education and forests; it indicates how SDG 4 might impact on forests, forest ecosystem services and forest-related livelihoods. HEIs can highlight the elements of pro-environment behaviour since it forms the basis for building a favourable relationship between SDG 4 and nature. It is suggested that HEIs promote inclusive education that builds and reinforces positive attitudes toward, and relevant knowledge and skills on forests, so that individuals and communities will stay connected to forests, which in turn, will foster and sustain pro-forest behaviours. HEIs can reinforce pro-forest behaviour in relation to SDG 4 by (1) implementing programs and activities that respect, nurture and instil indigenous and traditional knowledge, (2) promoting forest-related attributes and sustainability education, (3) strengthening forest-related professional, technical and vocational education and capacity development and (4) capitalizing on the power of both established and new media.

I. Artificial intelligence (AI)

According to Omdena (2023), artificial intelligence (AI) can significantly contribute to achieving SDG 4. AI can make the education landscape more personalized, inclusive and accessible for all, as it can empower teachers, learners and stakeholders to work together. HEIs can use AI to provide (1) personalized learning, (2) intelligent tutoring systems, (3) inclusive education and (4) teacher support. HEIs can use AI algorithms to analyze students' performance, learning styles and preferences to create personalized learning plans, thus enabling students to learn at their own pace and reducing disparities in educational outcomes. Besides that, they can use AI-powered tutors to provide students with immediate feedback, guidance and support in various subjects, thus supplementing instruction and enhancing the overall learning experience. In addition, they can use AI technologies, such as, speech recognition, natural language processing and computer vision to create accessible educational materials for individuals with special needs or those who speak different languages. They can also use AI tools; for example, by adopting predictive analytics to identify at-risk students early so that targeted interventions can be implemented.

Omdena (2023) added that AI can be utilized for enhancing (1) personalized learning, (2) the use of adaptive assessments, (3) creative problem solving, (4) skill development and (5) data-driven policies. HEIs can use online platforms powered by AI to help learners around the world to access high-quality educational content and courses regardless of geographic location or financial constraints. They can also use AI-based assessment systems to evaluate students' knowledge accurately by adapting questions based on previous responses and tracking progress over time. Moreover, they can leverage machine-learning algorithms to promote creative thinking through collaborative projects where learners combine ideas or build upon existing work facilitated by recommender systems. Furthermore, they can use AI-driven career guidance platforms to identify skill gaps within the workforce and to recommend relevant training programs that align with labour market demands. Lastly, they can utilize the data generated by AI-powered education platforms to make informed decisions about resource allocation, curriculum design and teacher recruitment to improve education systems.

IV. CONCLUSION

To conclude this conceptual paper, a case study was carried out on Jesselton University College/JUC (a private university college in Sabah, Malaysia) in terms of SDG 4. JUC strives to promote SDG 4 in various ways (Chin & Yong, 2024). First, it offers short courses programs for students, staff and the public; its executive education programs enable individuals to enhance their professional skills and knowledge in specific areas of interest, which can contribute to their career

International Journal of Novel Research in Education and LearningVol. 11, Issue 4, pp: (28-37), Month: July - August 2024, Available at: www.noveltyjournals.com

development, job prospects and overall professional growth. The executive education programs are designed to extend educational resources, opportunities and support beyond the traditional classroom setting for individuals who may not have regular access to formal education, with the objectives to provide learners with the essential life and academic skills required in the real world and fundamental knowledge on how to navigate the Internet and how to incorporate it in their studies. Additionally, JUC is committed to bridging academia with the industry through strategic partnerships. Its extensive network of industry collaborators provides students with numerous opportunities for experiential learning, internships and real-world projects, which enable them to gain practical experience, establish meaningful relationships and launch their careers with confidence.

Second, JUC is committed to providing equal access to education outreach activities for all individuals, regardless of their ethnicity, religion, disability, immigration status or gender, thus ensuring that everyone has the opportunity to benefit from educational enrichment and engage in meaningful learning experiences. JUC upholds the policy that treats all individuals with respect, dignity and fairness so that no one is excluded or disadvantaged. It ensures that all education outreach activities are conducted in accessible facilities and utilize inclusive resources. It also provides reasonable accommodation and support services to individuals with special needs to facilitate their full engagement. Lastly, it considers the diverse needs, backgrounds and perspectives of the community by engaging and collaborating with a wide range of individuals and organizations to ensure relevance and inclusivity (Chin & Yong, 2024).

Third, JUC offers courses at diploma, undergraduate and Master levels. For example, the Diploma in Commerce aims to provide students with professional and academic-oriented education which enables them to assume roles in the accounting, finance, marketing, management, tourism and hospitality fields where they can apply their knowledge, techniques and skills. The Bachelor of Business Administration focuses on teaching students how to succeed in today's business world by providing the necessary knowledge, tools and concepts to analyze and solve complex business problems. It also enables students to develop dynamic leadership abilities leading to greater effectiveness in a middle management position, while gaining an understanding of how a business operates through accounting, finance, human resources, marketing and management. The Bachelor (Hons) of Hotel and Tourism focuses on teaching students how to manage the hotel and tourism business, which prepares students for a successful career within the hotel, tourism and leisure industry (Chin & Yong, 2024). Fourth, the Bachelor of Psychology equips students with a comprehensive understanding of the human mind and behaviour; it focuses on the theoretical knowledge and practical skills that are essential for a career in psychology or related fields.

Finally, JUC also offers a Master of Education and a Master of Business Administration, which are in line with the current knowledge-based economy. The Master of Education is specifically tailored to produce graduates with innovative knowledge and skills to function as effective educators and trainers in the educational domain, while the Master of Business Administration aims to reinforce students' understanding of all functional areas of business that are applicable to the wider commercial market (Chin & Yong, 2024).

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International Journal of Novel Research in Education and Learning

 Vol. 11, Issue 4, pp: (28-37), Month: July - August 2024, Available at: www.noveltyjournals.com

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