Generic Graduate Attributes: Foundational Principles for Lifelong Education in Building a Sustainable Future

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DOI: https://dx.doi.org/10.47772/IJRISS.2024.803324S

Received: 19 September 2024; Accepted: 24 September 2024; Published: 25 October 2024

ABSTRACT

Inside the framework of Education for Sustainable Development (ESD) aligned with the Sustainable Development Goals (SDG) 2030, foundational skills such as mindset and attitudes play an important role for developing sustainable development policies and lifelong learning initiatives into Malaysia's educational system. This study aims to assess the characteristics of learners pertaining to the learning process, employability, and collaborative skills. Ninety-nine semester four LG120 students at Universiti Teknologi MARA Cawangan Melaka and Universiti Teknologi MARA Cawangan Johor were administered a 35-item questionnaire to evaluate seven dimensions of generic graduate qualities in lifelong education. Results were examined using SPSS, and mean scores along with standard deviations were obtained for each dimension. The results indicate that learners demonstrated a high level of receptiveness and have made progress in all seven sub-attributes associated with the ESD framework. It is essential for work-ready graduates to have strong technical skills and demonstrate exceptional generic ability to meet the demands of various working environments. Further investigation is needed into pedagogical methodologies and educational frameworks for the appropriate integration of various traits, particularly with specific generic attributes.

Keywords: Education for Sustainable Development, Sustainable Development Goals, generic, lifelong education, attributes

INTRODUCTION

The term "generic skills," sometimes known as "transferable skills" or "soft skills," includes a wide range of competencies and qualities that can be applied to different professions and various industries. These skills are not restricted to any one field or profession but are essential for achieving personal and professional success in various situations. It is important to incorporate these skills into the curriculum of higher education institutions in order to provide graduates with the necessary abilities to meet the requirements of the modern workforce. They have significance for professional growth and highly esteemed by employers in many industries. There is a growing awareness of the need to enhance learner engagement in the learning process and to offer an education that focuses on developing practical abilities in addition to academic accomplishments.

Currently, the importance of information and knowledge workers is centred around their need for adaptable and transferable abilities, particularly the ability to continuously learn throughout their careers. Employers currently have high expectations for the qualities they seek in new recruits. The essential skills comprise

efficient communication, collaboration, numerical proficiency, and proficiency in information technology. Non-technical skills, often termed employability skills, consist of fundamental abilities like oral communication, alongside higher order competencies such as decision-making, affective skills, problem-solving, learning strategies, and personal attributes including interpersonal skills (cooperation, teamwork), dependability, responsibility, self-discipline, self-management, a positive attitude, and the ability to work independently [10]. Employers prioritise generic employability abilities over specific technical skills, and they express significant concerns about graduates' inadequacy in the required employability skills. [10].

These basic abilities are essential aspects of education and training courses at all levels. Higher education institutions should thoroughly examine these skills to promote sustained progress in education, benefiting both learners and the nation. Nevertheless, there is a no consensus on the concept of employability despite the increase importance on this issue especially on the development of generic attributes such as mindset, attitude and lifelong competencies. A lack of focus on the development of generic skills could result in a gap to prepare graduates for employment readiness. As a result, there is a discrepancy between educational institutions' curricula and actual demand of the workforce. Educational institutions often prioritise technical skills compared to the holistic development of learners, and this causes problems in preparing graduates for the demands of both the workplace and sustainable future. Therefore, it is necessary to have a greater emphasis on employment and prioritise the development of generic skills in educational institutions to successfully accomplish this objective.

Many countries have shifted their attention towards prioritising "Education for All" as a key component of their development policies. The availability of education at all levels, ranging from primary to higher education, has emerged as a significant concern and challenge for political leaders, policy makers, and educators equally. In order to support a sustainable development policy, lifelong learning programmes have been widely promoted. These programmes prioritise the acquisition of generic skills as an essential part of the learning process. Countries must also establish a knowledge-based economy in order to maintain their economic existence, due to the demands of globalisation and technological advancements. One way to accomplish this is by actively promoting and providing lifetime learning opportunities. Malaysia is among the countries that have been actively engaged in such efforts. In the past three to four decades, there has been a noticeable change in the way human capital is developed. Integrating the Sustainable Development Goals (SDGs) into Malaysia's education system assures that learners receive sufficient preparation for the future, thereby promoting the nation's sustainable development and cultivating a generation of conscientious, knowledgeable, and competent individuals.

Education for Sustainable Development (ESD) allows every learner to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future. Besides that, it also empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations.

Nevertheless, it serves as a holistic and transformational education that addresses learning content and outcomes, pedagogy and the learning environment and achieves its purpose by transforming social institutions so they can respond creatively to global sustainability challenges. Furthermore, the learning content and outcomes, pedagogy, and learning environment are incorporated holistically and transformatively in ESD [12]. The main one goal here is to generate and scale up ESD action to accelerate progress towards sustainable development (Gelb & Krishnan, 2022). In the context of Education for Sustainable Development (ESD) under the Sustainable Development Goals (SDG) 2030, generic skills such as mindset and attitudes play an essential role. These skills are particularly important for learners in terms of collaborative learning and lifelong learning. It is considered important to ensure that learners are adequately prepared for employment. This is due to the fact that businesses are placing a growing emphasis on graduates who not only have technical expertise, but also exhibit excellent generic abilities. Having a positive mindset and demonstrating professional attitudes enables prospective graduates to be able to adapt, flexible, and competent in doing well in many job settings. These characteristics improve employability by increasing the

value of graduates to businesses who are looking for individuals who can contribute to sustainable and innovative solutions.

Furthermore, ESD emphasises the significance of collaboration and teamwork in addressing difficult global concerns. Effective collaboration requires individuals to possess a growth mindset and have good attitudes towards diversity and inclusion. These abilities empower graduates to effectively collaborate in teams, demonstrate respect for diverse viewpoints, and make valuable contributions to collective endeavours focused on sustainable development. The ever-changing nature of global challenges necessitates ongoing learning and adjustment. By maintaining a commitment to continuous learning throughout their lives, driven by curiosity and a mindset focused on personal improvement, graduates can ensure that they stay current and well-informed in regard to the most recent information and abilities. The ability to adapt is crucial in order to tackle persistent sustainability difficulties and accomplish the objectives set by the SDG 2030 agenda. However, having a mindset and attitudes that are in line with sustainability principles is imperative for achieving the objectives of Education for Sustainable Development (ESD). Graduates who possess knowledge of and are dedicated to sustainable practices have the potential to initiate change within organisations and communities. They may encourage ecologically and socially responsible actions that contribute to the long-term sustainability of these entities.

This study aims to evaluate the attributes of learners with the ESD framework as it recognises the importance of fundamental skills such as mindset and attitudes, in relation to the process of learning, employability, and collaboration skills. It primarily examines the generic abilities and competencies for learners to make significant contributions to sustainable development and address the challenging problems facing the future. Thus, this study seeks to explore how incorporating the ESD framework into educational programs can address the issue of preparing graduates in real-world experience by ensuring them to have both employability skills and generic attributes for long term success in a complex, and challenging globalised world. This research also aims to investigate how the integration of ESD principles as mentioned above into educational programs achieve success in the holistic development of graduates to thrive in various professional settings. The ESD framework emphasises the integration of generic skills cultivating competencies such as critical thinking, collaboration and self-assessment to enhance graduates' ability to engage in lifelong learning making them more employable.

This study aims to explain the research questions as follows:

1. How can the development of generic skills such as mindset and attitudes be measured and assessed in the context of Education for Sustainable Development (ESD)?

2. How do mindset and attitudes foster lifelong learning skills among graduates in Education for Sustainable Development (ESD)?

LITERATURE REVIEW

Sustainable Development Goals (SDG)

The 2030 Agenda has its foundation on 17 Sustainable Development Goals (SDGs). The SDGs, which are universal, transformational, and inclusive, define significant development challenges for humanity. The objective of the 17 Sustainable Development Goals (SDGs) is to provide a sustainable, peaceful, prosperous, and equitable development for all individuals in the society both presently and in the future. The goals address worldwide concerns that are important to the sustainable existence of humanity. They establish environmental constraints and define important limits for the utilisation of natural resources. The aims acknowledge the necessity of combining efforts to eliminate poverty with the implementation of methods that promote economic development. They address a variety of societal demands such as education,

healthcare, social welfare, and employment prospects, all while addressing the issues of climate change and environmental preservation.

The Sustainable Development Goals (SDGs) aim to address fundamental obstacles to sustainable development, including inequality, unsustainable consumption practices, limited institutional capability, and environmental deterioration. Nevertheless, this study specifically emphasises on the recently established 2030 Agenda for Sustainable Development, which effectively epitomises the notion of recognising the significance of a proper educational reaction. Sustainable Development Goal 4 specifically formulates education as a distinct objective. Other Sustainable Development Goals (SDGs) also include a variety of targets and indicators connected to education. Education serves as both an objective in its own right and as a method for achieving all the other Sustainable Development Goals (SDGs). It is not only a fundamental component of sustainable development, but also an important mechanism for it.

Besides, education is also considered to be important in achieving the SDGs and is being emphasised in this research paper. It emphasises the ability of learners to become independent individuals who can bring about sustainable change. Individuals aiming to contribute to sustainable development requires the knowledge, skills, expertise, values, and attitudes. Education is essential for attaining sustainable development. Thus, Education for Sustainable Development (ESD) is an increasingly recognised approach that enables learners to make rational choices and take responsible actions that preserve the environment, ensure economic sustainability, and promote democracy for both current and future generations.

Education for Sustainable Development (ESD)

This study aims to explore how Education for Sustainable Development (ESD) principles can be integrated into higher education program standards to encourage important graduate attributes, particularly mindset and attitude, as generic skills. These attributes are crucial in preparing graduates not only for specific tasks but also for successful and fulfilling careers.

ESD needs to be recognised as an essential component of high-quality education, built into the principle of lifelong learning. All educational institutions, including those in non-formal and informal education, have a responsibility to actively address sustainable development and promote the development of skills related to sustainability. ESD offers a meaningful and pertinent education that is applicable to all learners in regardless of present difficulties and it is a comprehensive and transformative approach to education that includes the content and results of learning, teaching methods, and the learning environment. ESD necessitates a transition from the act of teaching to the act of learning. The application is for a pedagogy that emphasises action, transformation, self-directed learning, engagement, collaboration, problem-solving, integration of different disciplines, and the connection between formal and informal learning.

ESD is beyond teaching new concepts about sustainable development and adding new ideas to educational programmes and courses. Educational institutions and universities should see themselves as places to learn about and practise sustainable development. Here are five ESD Principles which contribute to lifelong learning which are Advancing Principles, Transforming Learning Environment, Building Capacities of Educators, Empowering and Motivating Youth, and Accelerating Local Level Actions. In addition to the five ESD principles, in this research, seven core competencies which are collaboration, adaptability, personal growth and well-being, managing information, problem-solving, communication, and critical thinking with pedagogical approaches are investigated to ensure that sustainable development is effectively integrated into educational practices. Competencies are deemed important as they are a combination of attitudes, skills and knowledge that learners developed and apply for successful learning, living and working. It could help empower instructors to actively engage in the sustainability in a meaningful way too. The transitions to connect the core competencies to the principles established ESD framework, a comprehensive approach designed to show how they work together to prepare graduates for lifelong learning and equips them to be both active and responsible participants further contribute to a comprehensive sustainability education.

ESD Framework: Mapping Generic attributes to ESD principles, Pedagogical approaches and Core competencies

Category	ESD Principles	Pedagogical approaches	Core competencies
Interest and Motivation	Transforming Learning Environment Empowering & motivating Youth	Experiential learning, field-based learning, collaboration learning	Collaboration adaptability
Initiative and Curiosity	Building capacities of Educators Empowering & Motivating Youth	Collaboration learning, active learning, self-directed learning	Critical thinking Adaptability Problem-solving
Active Participation	Transforming Learning Environment Empowering & Motivating Youth	Experiential learning, active learning, collaboration	Collaboration Adaptability Problem-solving
Self-Reflection & Self-Assessment	Advancing Principles Building Capacities of Educator	Reflect learning Self-assessment	Personal growth and well being Critical thinking adaptability
Resource Utilisation	Transforming Learning Environment Accelerating Local Level Actions	Active learning	Managing information Critical thinking Collaboration Problem-solving Adaptability
Collaborative skills	Transforming Learning Environment Empowering & Motivating Youth	Cooperative skills	Collaboration Critical thinking Problem-solving Communication
Feedback & Improvement		Engagement in Feedback	Adaptability Critical thinking Collaboration Personal growth and well being

An excellent beginning for individuals seeking greater involvement is to broaden their understanding of the comprehensive scope of sustainability. Education is important for establishing a sustainable future, and our course of action is centred around promoting the welfare of both people and the world. ESD is an approach

that combines behaviour change, educational pedagogy and knowledge sustainability where the integration of these three things results in an effective and transformative learning process [14].

Individuals engaged in learning, conducting research, instructing, and leading in the field of education must possess the necessary information, abilities, and methodologies to effectively contribute to a dynamic global environment. This initiative aims to integrate sustainability principles into teaching and learning practices, ensuring their relevance and applicability to the specific local context and classroom environment [4].

Higher Learning Institutions in Malaysia encountered significant criticism regarding the insufficiency of their curricula in equipping graduates with the necessary soft skills. One of the main obstacles in the Malaysian industry is the absence of soft skills among graduates [5]. Even though there is great improvement in their grades, graduates are still facing difficulties in securing employment [3]. In addition, a significant number of graduates are unprepared for the present work environment as a result of their poor communication skills, weak collaboration abilities, and limited capacity to manage projects autonomously. Hence, it is imperative to provide a precise definition of the essential competencies required to thrive in the professional environment [7]. Researchers in the field of literature have determined that the low rate of employability among graduates is due to a mismatch between the curriculum offered by universities and the skills that are in demand in industry [1]. According to [8], employment in Malaysia currently requires graduates to possess a higher level of competence and soft skills. The focus of employability skills has traditionally been on acquiring general skills and developing graduate qualities. Employability focuses on the capabilities and intrinsic characteristics of individuals, such as skills, understandings, and personal attributes; it is seen as the absolute dimension of employability [9]. The lifetime process of acquiring employable skills begins with the personal traits of individuals, and then progresses through several stages of learning and socialisation, including family, community, education, university, and employment experiences. The lifelong learning approach develops learners who possess the ability to actively begin and sustain significant transformations.

The Ministry of Higher Education (MoHE) in Malaysia has identified seven important soft skills that all graduates should possess, as indicated in the Module for the Development of Soft Skills for Higher Learning Institution Malaysia, 2006. These skills include critical thinking and problem-solving, effective communication, lifelong learning and information literacy, teamwork, professional ethics and morality, entrepreneurship, and leadership. The human capital theory says that having graduates who are not working may negatively impact the revenue of the country. Knowledge and skilled workers are seen as important resources that help a country's economy grow and be more productive, according to this approach. The economy will fail to perform as well as it could when a lot of graduates with relevant expertise and abilities are not properly employed. This is because the country's resources will not be handled well [13]. Hence, university graduates must have additional soft skills in order to meet the demands of the competitive job market. This too has detected a shift away from the conventional focus on important areas of knowledge and abilities in an academic field.

It is important for pedagogy and learning settings to incorporate the Sustainable Development Goals (SDGs) as educational content in order to align with the foreseen societal shifts that will help achieve these goals. Education is the most strategic approach to instill and implement sustainable development principles. Moreover, education is regarded as the most crucial factor in advancing sustainable development and enhancing human competencies [14]. Education for Sustainable Development (ESD) is a mechanism to achieve the Sustainable Development Goals (SDGs). It can facilitate the transformation necessary for society to move towards a sustainable nation [11].

However, this policy vision may be subject to debate considering the fact that worldwide it has yet to achieve the goal of reaching universal access to quality education as outlined in SDG4 (Ireland, 2022). Nevertheless, this study concentrates on the justification for the structure rather than its implementation. The ESD for 2030 initiative proposes the use of interactive, project-based, and learner-centred methodologies to enable learners to effectively adapt and learn from their own experiences in order to attain sustainability, as

outlined by UNESCO in their 2030 agenda. ESD has been promoting for knowledge, skills, values, and attitudes that enable learners to make informed decisions and engage responsible activities for environmental sustainability, economic viability, and social equality. Efforts have been undertaken to integrate Education for Sustainable Development (ESD) into educational policies, curricula, and teacher training through the UN Decade and the Global Action Programme on ESD [12].

METHODOLOGY

This study employed the analytical descriptive methodology collecting data through a 35 items questionnaire to assess seven dimensions of generic graduate attributes in lifelong education, for each dimension of generic attributes, the respondents were given five items to gather information on generic abilities and competencies acquired by students (respondents). The sample consisted of 99 respondents, whom are semester 4 LG120 students at Universiti Teknologi MARA Cawangan Melaka and Universiti Teknologi MARA Cawangan Johor. A field trip was organised as part of the curriculum for these learners. The trip enabled learners to engage with a practical application of their academic study, specifically in translation, proofreading, and editing. The objective of this field trip is to broaden educational experiences beyond the classroom and to foster the development of students' transferable abilities, including teamwork, flexibility, and critical thinking, through practical engagement in professional settings. The trip offers important experience learning opportunities through engagement in industry-related activities, essential for promoting lifelong education and transferable skills.

Upon collecting the questionnaire, a quantitative descriptive analysis of the responses was conducted for all dimensions using SPSS (Statistical Package for the Social Sciences). Frequency data, including mean scores and standard deviation, were evaluated to investigate learners' perspectives and competencies. Descriptive statistics were used to present the results of the two research questions by examining trends, patterns, and the level of consensus across these seven variables. The analysis aims to demonstrate how these generic attributes enhance lifelong learning skills and provide information into learners' preparedness for employment and sustainable development.

RESULTS AND FINDINGS

Table 1 below shows the interest and motivation learners have which reflect the effectiveness of pedagogical approaches that emphasises on active, experiential and collaboration learning aligned with the ESD principles to prepare learners for future challenges.

Table 1: Interest and Motivation

No.	Interest and Motivation	Mean	SD	Result
IM1	I am interested in participating in the collaboration project (field trip-ITBM).	4.60	0.61	High
IM2	I am motivated to actively engage in learning.	4.54	0.57	High
IM3	The project inspires me to explore new ideas/ topics independently.	4.45	0.64	High
IM4	I find the topic covered in the collaboration project (field trip-ITBM) intriguing and engaging.	4.42	0.67	High
IM5	I look forward to the activities and experiences planned for the collaboration project.	4.57	0.57	High
TOTAL		4.52	0.51	High

The results show a high overall mean score of 4.52 (SD= 0.51) in interest and motivation with the highest mean score of 4.60 (SD=0.61) for Item 1 indicating that learners are highly engage in experiential and field-based learning through collaboration projects, and the lowest mean score of 4.42 (SD= 0.67) for item 4 indicating that learners view topic covered is less engaging. In this case, the mean score remains in the high-level category which indicates that learners in general still agree that topic covered were intriguing and

engaging and thus contribute positively to the overall findings. Across all items, mean scores were ranged 4.42- 4.60 (SD= 0.57-0.67 in the high-level category. Hence, learners strongly agree that this experience contributes to the hands-on and real-world learning with the industry that aligns with ESD which connects theory to practice for learners to experience the direct impact of their actions to sustainability related issues.

The analysis demonstrates high level of interest and motivation displayed by learners is aligned with the goals of Transforming Learning Environment and Empowering and Motivating Youth within ESD. Learners are interested and motivated to apply what they learn to real-world sustainability challenges. They are actively engaged in this transformed learning environment where it is integrated in the curriculum with experiential learning environment. This could prepare them to become leaders and changemakers in the pursuit of sustainability development that enhances their educational experience and proven meaningful to the society. This also reflects the learners are likely to have growth mindset and possess a positive attitude to learning. They were able to overcome setbacks and challenges and have the effort to achieve mastery which learners are developing a mindset of adaptability. Besides that, learners too possess a motivated attitude which in turn will lead them to persistent in face of challenges. They were able to embrace continuous learning as part of their personal and professional development.

Table 2 below shows the initiatives and curiosity learners have which reflects on the successfulness on collaboration project whereby learners are actively and independently engaged in seeking information, integrating critical thinking and problem-solving skills aligned with the ESD principles.

Table 2: Initiative and Curiosity

No.	Initiative and Curiosity	Mean	SD	Result
IC1	I take the initiative to seek out new information or experiences during the field trip.	4.40	0.62	High
IC2	I want to know more about the topics or activities explored during the collaboration project with ITBM.	4.38	0.58	High
IC3	I am proactively engaging with peers, educators, or industry partners to learn more about the subject matter.	4.29	0.64	High
IC4	I independently seek additional resources to deepen my understanding of the project topics.	4.08	0.72	High
IC5	I actively explore questions and problems that arise during the collaboration project.	4.15	0.67	High
TOTAL		4.26	0.53	High

The overall mean score for the items is 4.26 (SD=0.53) showing a high level of initiative and curiosity among learners with the highest mean score of 4.40 (SD=0.62) for item 1 indicating learners are able to take initiatives to seek information an view gaining experience as important in collaborative projects, and the lowest mean score is 4.08 (SD=0.72) for item 4 which reflects that learners' behaviours in being independent to seek resources and engagement with questions and problems require support and encouragement. Educators play important roles in creating learning environment that encourages these behaviours. However, results across items for mean score were ranged 4.08-4.40 (SD= 0.58-0.72) remains in the high-level category which means learners portray intense interest and integrate high level of curiosity to engage in the collaborative project. This aligns with the ESD which connects learners' active engagement in self-directed learning and collaborative problem-solving are essential to for addressing sustainability challenges. This proactive learning behaviours are encouraged in the ESD framework.

The analysis demonstrates high level of initiatives and curiosity among learners is aligned with the goals of Building Capacities of Educators and Empowering and Motivating Youth within ESD. Educators successfully inspire students to become proactive learners through competencies such as self-directed learning and problem solving in which educators are building their own capacities to support learners in becoming active contributors to sustainable development. Nevertheless, learners are able to take charge of their learning, explore new ideas, and develop critical skills to motivate youth to become life-long learners who can independently engage with sustainability issues and be responsible for their own development. This

mindset and attitude could help learners to engage with complex sustainability issues challenges with real interest and curiosity so that these students were able to develop passion needed in the future careers and lives. Needless to say, some learners may need a little more encouragement and resources to take initiative and pursue learning independently which is the core goal in the ESD framework.

Table 3 below shows the active participation in hands-on learning experiences and practical tasks by contributing ideas, cooperation among peers, and volunteering aligned with the ESD principles.

Table 3: Active Participation

No.	Active Participation	Mean	SD	Result
AP1	I frequently contribute ideas, insights, or perspectives during discussions or group activities.	3.95	0.75	High
AP2	I am actively involved in hands-on learning experiences or practical tasks during the field trip.	3.93	0.71	High
AP3	I collaborate with peers to solve problems or complete assignments related to the project.	4.10	0.64	High
AP4	I volunteer for tasks and responsibilities during the collaboration project.	3.84	0.76	High
AP5	I engage in discussions and activities even when they are challenging.	4.09	0.65	High
TOTAL		3.98	0.59	High

The overall mean score for the items is 3.98 (SD=0.59) with the highest mean score of 4.10 (SD=0.64) for item 3 demonstrating strong aspects of active participation with peers to solve problems and complete tasks in collaborative projects, and the lowest mean score of 3.84 (SD= 0.76) the willingness of learners to volunteer for tasks and responsibilities though still considered in the high-level category. However, across items, the high mean scores are average in between 3.84-4.10 (SD=0.64-0.76) highlight a positive trend on learners' participation in active learning and collaboration. This aligns with the ESD which learners are seen to be able to participate actively by showing strong engagement in discussion, group activities, and ability to navigate complexity and uncertainty in sustainability context.

The analysis shows that learners' active participation is aligned to Transforming Learning Environment and Empowering and Motivating Youth within ESD. Learners were able to apply knowledge in real world context, develop critical thinking skills, and involving directly in problem-solving activities. This allows learners to step out of their comfort zone of traditional rote learning that encourages resilience and adaptability. Besides that, learners' participation in teamwork increases confidence fostering a sense of ownership over their learning and future. Learners could become proactive leaders by taking charge of initiatives, influencing the direction of the projects, and contributing meaningfully to the communities, support ESD goals of integrating lifelong learning and leadership qualities for sustainable development. Learners were able to develop a mindset that values learning through active participation reflect positive attitude towards teamwork and shared responsibility in professional and social contexts achieving the objectives in ESD framework.

Table 4 below indicates on how learners were able to perceive their ability to reflect learning experiences, assess own progress and making improvements in their learning experiences aligned with the ESD principles.

Table 4: Reflection and Self-Assessment

No.	Reflection and Self-Assessment	Mean	SD	Result
RS1	I reflect on my own learning experiences and achievements during the collaboration project.	4.27	0.61	High
RS2	I evaluate my progress and identify areas for improvement in terms of autonomous learning skills.	4.20	0.66	High

RS3	I am able to set goals for myself and monitor my progress towards achieving them.	4.14	0.67	High
RS4	I regularly think about how the collaboration project has impacted my personal growth.	4.14	0.62	High
RS5	I create personal action plans based on my reflections to improve my learning outcomes.	4.09	0.71	High
TOTAL		4.06	0.55	High

The overall mean score for the items is 4.06 (SD=0.55) with the highest mean score of 4.27 (SD=0.61) for item 1 demonstrating ability to reflect on their learning experience and achievements indicating learners consistently engaging in reflective practises and self-assessment, and the lowest mean score of 4.09 (SD= 0.71) but it is still high shows learners were able to translate their reflections into actionable plans for improvement. However, across items, the high mean scores are average in between 4.09-4.27 (SD=0.61-0.71) indicating overall effectiveness in fostering reflective practices among learners that contributes to the ESD principles such as critical thinking, self-awareness, and the ability to act for sustainable development.

The analysis shows that learners' reflection and self-assessment is aligned to Advancing Principles and Building Capacities of Educator. It somehow indicates that learners react strongly on their achievements in actionable outcomes and were actively engage in the process of understanding and evaluating their learning experiences. These practices can be integrated into program standard in which structured reflective activities can be incorporated into the curriculum to encourage commitment to lifelong learning and sustainable development. This could be a strong factor for higher learning institutions to further encourage learners to contribute meaningfully to sustainable initiatives. Nevertheless, educators have successfully integrated reflective practises into their teaching methods and in promoting critical reflection, self-assessment, and lifelong learning skills to learners. They were guided to become autonomous learners who can set goals, monitor progress, and continually improves thereby enhancing capacity to deliver ESD focussed education. Learners' willingness to reflect on their own learning and continuously seek improvement with positive attitudes to the proactive approach to setting goals and evaluating progress could results in learners' ability to achieve outcomes beyond formal education and they are able to adjust strategies to adapt to the evolving demands of workplace and society which is the core goal in the ESD framework.

Table 5 below indicates on how learners were able to develop the ability to utilise available resources to support process of learning aligned with the ESD principles.

Table 5: Resource Utilisation

No.	Resource Utilisation	Mean	SD	Result
RU1	I effectively use available resources, such as research materials, technology tools, or expert guidance, to support my learning.	4.27	0.61	High
RU2	I use the opportunities provided during the field trip to access relevant information and resources	4.28	0.63	High
RU3	I identify and utilise various resources to solve problems encountered during the project.	4.04	0.65	High
RU4	I seek out expert guidance and mentorship to enhance my understanding of project topics.	4.04	0.69	High
RU5	I am able to adapt my learning strategies based on the available resources and constraints.	4.11	0.60	High
TOTAL		4.14	0.52	High

The overall mean score for the items is 4.14 (SD=0.52) with the highest mean score of 4.28 (SD=0.63) for item 2 suggests that learners are highly engaged in taking the opportunities to access relevant information and to use resources available effectively. Learners portrays high level confidence to seek for expert

guidance including technology tools and resources effectively. The lowest mean score of 4.04 (SD=0.65, 0.69) for items 3 and 4 though still in the high-level category reflects that learners were less likely to seek guidance, and limited resources were available in problem-solving activities. However, across items, the high mean scores are average in between 4.04-4.28 (SD=0.60-0.69) indicating overall effectiveness of learners' resources utilisation capabilities in accessing information, technology use and problem-solving skills which contributes to the ESD principles.

The analysis shows that learners' resource utilisation skills is aligned to Transforming Learning Environment and Accelerating Local Level Actions. Learners were able to demonstrates flexibility and responsiveness in different learning environment. They were able to adapt to learning strategies with available resources and barriers too. It encourages learners to become resourceful learners by using local resources and community-based solutions to thrive in various settings and to make education more relevant, contextual, and responsive to real world challenges in sustainable principles. Learners' proactive attitudes and adaptable mindset transform their learning journey by being active participants besides learning from others and understand the value of mentorship from more experienced individuals. Learners continually reflect and refine their skills and approaches is the core goal in the ESD framework.

Table 6 below indicates learners' effective communication to reflect strong collaborative skills among learners demonstrating they are well prepared to work as a team and practise cooperative learning aligned with the ESD principles.

Table 6: Collaborative Skills

No.	Collaborative Skills	Mean	SD	Result
CS1	I am able to cooperate with peers to accomplish shared goals or tasks during the collaboration project.	4.18	0.64	High
CS2	I am able to communicate effectively, listen actively, and respect diverse perspectives within my collaborative team.	4.21	0.59	High
CS3	I am able to negotiate roles, responsibilities, and decision-making processes with peers.	4.11	0.68	High
CS4	I contribute to creating a positive and productive team environment.	4.11	0.65	High
CS5	I recognise and value the strengths and contributions of my peers during the project.	4.16	0.65	High
TOTAL		4.15	0.54	High

The overall mean score of 4.15 (SD=0.54) and the mean score across items in between (4.11-4.21 (SD= 0.65-0.68) in the high-level category shows learners' strong collaborative skills contributing to successful teamwork and peer interactions. The highest mean score of 4.21(SD=0.59) for item two suggests that learners were able to communicate effectively, listen actively, and respect diverse perspectives within team members. The lowest mean score of 4.11 (SD=0.65, 0.69) for items 3 and 4 nonetheless still in the high-level category indicates learners' slight room for improvement in negotiation skills and building positive and productive environment. However, learners were able to practise exchanging roles and taking responsibilities, and decision-making process among team members.

The analysis shows that learners' collaborative skills is aligned to Transforming Learning Environment and Empowering and Motivating Youth. Learners were able to go beyond individualistic approaches to working together in a team environment to achieve common goals. Thus, educational institutions are transforming learning process to more participatory engagement and community oriented. This in return could create a comprehensive environment where diverse perspectives are respected and valued and encourages openness, leadership skills, and acknowledging each other's strengths among learners. The generic attributes of mindset and attitudes contribute to adaptability, resilience, and commitment to a continual improvement with collaborative skills. Learners were able to work within teams, learn from colleagues and participate to

collective problem-solving efforts besides continuously exchange knowledge, skills and experience with others by taking into considerations valuing diverse perspectives and showing empathy as well as being open to others' ideas which are emphasised in the ESD framework.

Table 7 below indicates learners' positive attitudes toward improvement reflect a high receptive to constructive feedback and suggestions for improvement aligned with the ESD principles.

Table 7: Feedback and Improvement

No.	Feedback and Improvement	Mean	SD	Result
FI1	I seek feedback from peers, educators, or industry partners to improve my autonomous learning skills	4.19	0.68	High
FI2	I am receptive to constructive feedback and suggestions for improvement.	4.20	0.57	High
FI3	I am able to apply feedback received to enhance your learning process and outcomes.	4.13	0.60	High
FI4	I actively incorporate feedback to improve my performance in future projects.	4.11	0.60	High
FI5	I use feedback to set new learning goals and challenges for myself.	4.20	0.62	High
TOTAL		4.16	0.52	High

The overall mean score of 4.16 (SD=0.52) and the mean score across items in between (4.11-4.20 (SD= 0.57-0.68) in the high-level category with the highest mean score of 4.20 (SD=0.57,0.62) for items two and five and the lowest mean score of 4.11 (SD=0.60) for item 4 indicate learners' high level of engagement with feedback and improvement among them. Learners were consistent in their behaviour in seeking, receiving and applying feedback as a tool for setting and achieving goals to support their learning experience.

The analysis shows that learners' feedback and improvement skills is aligned to Building Capacities of Educators and Accelerating Local Level Actions. Learners are well prepared to work as a team in local initiatives and community projects which demonstrates they have the ability to engage in collective efforts to support local sustainability challenges involving diverse stakeholders. This also reflect educators' efforts in familiarising collaborative learning environment to learners contributing to ESD by preparing them to become future leaders with the ability to engage in interdisciplinary, team-based problem-solving skills for sustainable development goals through education. Learners were able to handle feedback and pursue improvement to overcome challenges and adapt learning strategies for personal development is commendable. Their attitude and mindset enable them to continuously develop their skills and knowledge to remain motivated and focussed and this is deemed important aspects in lifelong learning skills supported in the ESD framework.

CONCLUSION

This research focuses on the importance of generic attributes such as mindset and attitudes in developing lifelong learning skills among learners and contributing to sustainable development. The results indicate learners have demonstrated a high level of receptiveness and showing progress in all the seven sub-attributes aligned with the ESD framework. These are important for work-ready graduates to have technical skills as well as exhibit excellent generic abilities to cater to the needs of many job settings. Graduates with knowledge and are dedicated to sustainable practices could make changes within organisations and communities. ESD aims to develop learners with in-depth knowledge, skills, values and attitudes to enhance work-related capacities to contribute to a sustainable future and these generic attributes support these goals.

Hence, education institutions must embed generic attributes within the educational framework such as in the curricula and teaching practices so that educators can better understand and prepare learners to become work-ready graduates not only for specific tasks but also for a successful and fulfilling career through being committed to lifelong learning and continuous improvement. Nonetheless, this is deemed important to

develop graduates which industry is demanding who are not only employable but equipped to contribute to sustainable development. Furthermore, this could strengthen the attributes and job prospects of graduates by providing them with a deeper understanding of different work settings and real-world work experience. Additionally, it has the tendency to broaden learners' industry connections, thereby enhancing their professional background profile and preparing them with the necessary abilities to advance in the professional world. A strong partnership between academia and the business sector can facilitate the development and implementation of educational materials. This could meet the requirements for an institutional partnership that would benefit the graduates.

However, this research has limited exploration and a lack of empirical research that links specific generic attributes, in this case, mindset and attitudes to the continuous learning process for sustainable development. This gap highlights the need for further investigation into the pedagogical approaches and educational frameworks that can effectively integrate these attributes in the programmes offered which could contribute to the all-round development of the learners which in turn enhance their chances of performing well in their workplace.

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