Unraveling the challenges of education for sustainable development: a compelling case study
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Abstract
Purpose – Education for sustainable development (ESD) has gained significant attention, but integrating ESD into existing education systems is challenging. The study aims to explore the challenges of ESD experienced by school leaders, focusing on the context of Malaysian schools.
Design/methodology/approach – The study uses a qualitative approach with a single-case study design. Eight school leaders involved in the Johor sustainable education action plan (JSEAP) were interviewed and analyzed. The study uses thematic analysis to identify the challenges and other causes associated with the implementation of ESD.
Findings – This study revealed that the school leaders perceived the ESD challenges at three levels. First, restriction to the standardized curriculum (systemic); second, resistance to change (organization) and third, awareness and readiness (individual). These themes stemmed from seven primary codes that school leaders encountered throughout the JSEAP program.
Research limitations/implications – This paper is limited to a case study of the chosen schools and cannot be extrapolated to a larger population.
Practical implications – The study benefits school leaders and educators concerned about ESD and its role in their schools and other academics interested in ESD.
Originality/value – To the authors’ knowledge, this is the first study to investigate ESD challenges in Malaysia. The novel discovery of the three levels of ESD challenges helps readers better understand the recent phenomenon of ESD implementation and compare it to other settings.
Keywords Sustainable development, Education for sustainable development, ESD challenges, ESD in Malaysia, School leaders

1. Introduction
In an era of ecological fragility, climate change and socioeconomic inequality, cultivating sustainable habits and beliefs has never been more pronounced. Education for sustainable development (ESD) has emerged as a transformative framework to empower individuals with the knowledge, skills and values needed to navigate the complex challenges of the 21st century (Kioupi and Voulvoulis, 2022). According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), ESD “empowers learners to make informed decisions and responsible actions for environmental integrity, economic viability, and a just society, for present and future generations.” ESD underscores the importance of considering the needs of both the present and future generations while also recognizing the contribution of education in the global effort towards a more sustainable living. It is a dynamic concept

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that integrates all facets of public awareness, education and training to foster or deepen understanding of the interconnections between Sustainable Development (SD) issues (Leicht et al., 2018). In a broad sense, ESD takes a holistic, integrated and interdisciplinary approach to education by emphasizing classroom activities and those related to social and environmental factors. School leaders play a pivotal role in implementing ESD as catalysts for integrating sustainability into the educational fabric (Verhelst et al., 2021). Nevertheless, integrating ESD into existing education systems is challenging (Zainal Abidin et al., 2023b). This study will explore some of the key obstacles that hinder the implementation of ESD from the perspective of the school leaders who steer the school operation.

School leaders are creating sustainable, inclusive and equitable schools for all children. However, implementing ESD in schools is complex and school administrators confront too many challenges for a single plan to work (Icihnose, 2019). The barriers have forced school leaders to figure out how to integrate ESD into their curriculum and pedagogy and how to explain these complex ideas to teachers and students. Considering the tough challenges, ESD has become an inextricable aspect of leadership on both large and small scales, requiring committed ESD leaders (Burns et al., 2015). School leaders also play a crucial role in promoting sustainable schools because, ideally, they can translate strategy into action, align individuals and organizations and establish effective intervention points (Parry and Metzger, 2023; Sinakou et al., 2019). However, they must first comprehend the notion of ESD, which is the starting point for the significant issues of ESD in the absence of a conventional foundation of ESD (Badea et al., 2020). Although there have been several attempts to integrate ESD worldwide, there is no single, replicable definition of ESD (Pauw et al., 2015). They concurred that the consequences of no single definition of ESD can be problematic from the perspective of educational change. A metaphor for this ESD dilemma was formulated by Östman et al. (2019), saying that ESD is like a compass in a school; it says a lot about the direction but little about how it will take you there. The vague and disorganized definition of ESD prevents school leaders from implementing the shift in sustainability, posing a significant threat to the ESD’s goals.

ESD is a global movement that is also taking place in Malaysia. However, ESD is not entirely “optimal” in Malaysian schools (Balakrishnan, 2021). Due to the complexity of the ESD concept, as mentioned before, the immature concept of ESD and the crucial role of school leaders, educators are currently working hard to build ESD-enhancing plans and policies while reducing impediments. The introduction of the policies and plans rendered various ESD-related programs. The Green School Award, the Sustainable Schools and Environment Award (SLAAS) and the Johor sustainable education action plan (JSEAP) 2019–2023 are just a few ESD-related initiatives introduced in Malaysian education. The JSEAP program served as the focal point of this study to gauge how school administrators respond to the ESD challenges. The JSEAP 2019–2023 was initiated by the Johor State Education Department in collaboration with Universiti Teknologi Malaysia (UTM) and Iskandar Regional Development Authority (IRDA) in 2018. The program aims to inspire students and schools in Johor to practice sustainable education, promote sustainable living for future generations and recognize schools active in ESD-related activities (Phang, 2019). Activities derived from this action plan include recycling, capacity building and green community involvement through subprograms such as Iskandar Malaysia eco-life challenge (IMELC), problem-based learning for low carbon society and Regional Center of Expertise (RCE) Iskandar sustainable and low carbon schools exhibition. This subprogram focuses on non-formal environmental education programs, for example, the IMELC, and examines how it empowers learning about environmental issues (Phang et al., 2018). These gaps led to an opportunity to deeply understand the school leaders’ live perspective on the ESD challenges, particularly in the Malaysian context. Thus, a study was conducted to gain insight into this concern, guided by these research questions:
RQ1. What are the challenges experienced by Malaysian school leaders in implementing ESD?

RQ2. How do Malaysian school leaders perceive the challenges of ESD?

Identifying the challenges of ESD among school leaders can significantly contribute to the successful implementation of ESD in education systems. It helps policymakers and education authorities understand the barriers and obstacles that school leaders face in integrating ESD into their schools. This knowledge can inform decision-making at the policy level, leading to the development of supportive policies and strategies that address these challenges.

2. Literature review

2.1 The overview of the global perspectives on the ESD challenges

School leaders wield substantial influence over the ESD. Their roles extend beyond administrative responsibilities; they serve as visionary leaders who shape the ethos and direction of the school. Despite its significance, research has identified substantial gaps in understanding the challenges hindering the effective implementation of ESD. One of the challenges of ESD is educators’ resistance to change. Many school leaders have encountered resistance for reasons that range from concerns over time constraints and lack of professional development to debates over sustainability as an ideology and ESD as indoctrination (Cebrián et al., 2022; Thao et al., 2022). Teacher resistance to change is the main reason curriculum change fails or achieves superficial change (Chen and Kompf, 2012). Teacher resistance is the by-product of the inability to understand the need for reform, one of many challenges to individual and organizational change (Heifetz and Linsky, 2017).

There is a dearth of comprehensive studies examining the integration of ESD principles into educational policies and curricula. Research gaps exist in understanding the alignment of ESD objectives and concepts with national educational frameworks (Marouli, 2021; Mokshein, 2019; Rauch and Steiner, 2013). Motivations for why schools and their leaders participate in ESD include educational policy pressures from decision-makers outside the school. The structural implementation program for ESD is an immense challenge that frequently responds to the decisions that pressure schools to transform education and become catalysts in building a sustainable society (UNESCO, 2014). However, a curriculum always guides schools with predefined goals by the local education authorities (Mogren and Gericke, 2019). The centralization and rigidity of the formal education structure are perceived as significant barriers to ESD (Liz Jackson, 2019).

Understanding the challenges of implementing ESD underscores the need for a concerted research effort to bridge these gaps. In recent years, research on ESD has been expanding, but empirical evidence on its impact and outcomes in facilitating the challenges remain extremely limited (Verhelst et al., 2021). In addition, how the school organization supports ESD implementation has received little research attention despite acknowledgment of its importance in ESD implementation (Leo and Wickenberg, 2014). Studies show that schools do not firmly establish ESD and sustainability (Müller et al., 2020). The study suggests that the structure and culture of schools and new norms have evolved and been established. However, studies examining the role of school leaders in ESD are still lacking (Leo and Wickenberg, 2014).

Further research is needed to understand the limited reasons for ESD challenges. Despite the global encouragement for ESD and the acknowledgment of the school principal’s role as a critical component in ESD implementation, research on the latter is still at an early stage (Verhelst et al., 2021). There is also evidence that very few studies have conceptualized the implementation of ESD at an organizational level, an area of research that continues to be poorly investigated (Kuzmina et al., 2020).
2.2 ESD challenges in Malaysia context
In the Malaysian context, studies have indicated that due to a lack of resources and ESD expertise among teachers, ESD has not been completely implemented within the curriculum (Saleem et al., 2022). However, later studies on ESD in Malaysia show that efforts to integrate the novel idea of ESD into the current curricula in the country were made (Hanifah et al., 2017; Yusof et al., 2022). Another study (Shaafi et al., 2021) showed average awareness of environmental issues among primary school principals in Kuala Lumpur. A study on school leaders’ perspective on ESD indicated that the challenge of principals to enact ESD goals highly relies on their positive thinking, ESD knowledge, system thinking and curriculum adaptation., which is still underdeveloped (Zainal Abidin et al., 2023a).

2.3 Underpinning theories in ESD
One underpinning theory that can help understand the challenges of ESD and their link with the sustainable development goals (SDGs) is the systems thinking theory. Systems thinking is a holistic approach that views a system as a collection of interconnected and interdependent elements that work together to achieve a specific purpose. Therefore, understanding the complexity of ESD challenges requires a shift in problem structuring, transforming the way problems are defined into a more collaborative process that first defines the vision (desired state) (Voulvoulis et al., 2022). When applied to ESD, systems thinking emphasizes the interconnectedness of social, economic and environmental factors and the need to address these interdependencies for sustainable development. Systems thinking theory highlights that the challenges of ESD cannot be viewed in isolation but should be considered within the broader context of the SDGs (Zainal Abidin et al., 2023a). The SDGs provide a comprehensive framework for sustainable development, encompassing a wide range of interconnected issues such as poverty eradication, education, climate action and responsible consumption. The challenges of ESD can be seen through a systems thinking lens by recognizing the complexity and interdependencies between the different dimensions of sustainable development. For example, a lack of access to quality education (SDG 4) can contribute to the challenge of limited awareness and understanding of sustainable practices, hindering the integration of ESD in schools. Many educational institutions struggle to integrate sustainability principles into their curricula. This lack of integration can make it difficult for students to connect their education to real-world sustainability challenges, impacting SDG 4 and the broader sustainability agenda.

Similarly, unsustainable consumption and production patterns (SDG 12) can impact the environmental sustainability aspect of ESD. Adopting a system thinking approach can help school leaders better understand the interconnections between ESD and the SDGs and address the challenges in a more holistic. It could involve considering how different SDGs align and support each other, identifying leverage points for change and implementing systemic interventions that promote sustainable practices across various sectors and stakeholders.

3. Methodology
Non-probability purposive sampling was used to select participants for this qualitative study. Purposive sampling for special or unique cases is a sampling strategy where subjects are chosen because of their attributes and characteristics of unique cases that meet the research needs (Bogdan et al., 2016). Rather than starting with the smallest study group size and working toward the population, it is preferable to determine the population first and then specify the unit of analysis to work with (Merriam and Tisdell, 2016). This study is on a larger population of school leaders in Johor state, which consists of more than 1,400 schools.
The population then focused on 403 schools actively involved in the JSEAP program. Only school leaders participating in JSEAP 2019-23 were selected as informants. This study is being undertaken in Johor schools because the JSEAP program is only available in Johor as of 2023 and has not yet been implemented in other states.

This study is based on a qualitative research design and single-case study approach using semistructured interviews for data collection. The single-case study approach is advantageous when there is a need to obtain an in-depth appreciation of an issue, event or phenomenon of interest in its natural, real-life context. Yin (2018) defines a case study as an empirical method that investigates a contemporary phenomenon (the “case”) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clear. In a single case study, researchers examined a case to understand the similarities and differences between the units of analysis. Instead of many case studies, a single case study focuses on a single case (JSEAP program). Because of the possibility of uncovering parallels and replication, single case studies focusing on school leaders who participated in JSEAP are employed in this study. The evidence created from a single case study is considered robust and reliable (Baxter and Jack, 2015). The single-case is within-case variations, and the case runs through the program concurrently and without temporal variation, classifying this case study as a “single case-study (synchronic)” design.

Semi-structured interviews were conducted with open-ended questions on school leaders’ roles, competencies, challenges and strategies in ESD. This study’s central question is: “As a school leader, what are the challenges in managing ESD?” The researchers are focused on ensuring that the interview questions are constructed to answer the research questions. The informants were also asked about their concept of ESD, practices of ESD and questions related to the competencies of the ESD, guided by this central question. The interview durations were between 32 and 77 min and aimed not to exceed 90 min, including the social conversation. All informants can discuss freely based on the questions, and researchers used probing questions to elicit further in-depth information. Eight interviews were performed, transcribed and analyzed using thematic analysis. The researchers first categorized all recurrent codes into themes, occurring concurrently and iteratively in a “recurrent theme analysis” (Miles et al., 2014). The data analysis was supported by Atlas.ti, a platform for rich text analysis. The following step is to wrap up the code by examining and establishing themes. The themes were subsequently interpreted in writing for the specified research questions.

4. Results
The codes recorded from the informants were scattered throughout the transcripts and sorted according to the themes. Seven primary codes were obtained to form three themes, as detailed in Table 1. There are three themes related to the ESD challenges among school leaders, namely (1) restriction to the exam-based curriculum, (2) resistance to change and (3) awareness and readiness.

4.1 Restriction to the standardized curriculum
This study defines restriction to the standardized curriculum as an educational approach or system that focuses primarily on preparing students for exams and emphasizes the content and skills necessary to regiment outcomes. Two primary codes were formed, namely (1) embedding ESD across the curriculum (EAC) and (2) curriculum familiarization (ECF).

The first theme was derived from the informants’ concern about the execution of ESD. All of them were very positive about the early introduction of ESD. However, the exam-based curriculum and the rigid syllabus sometimes impede them from fully transitioning ESD into
teaching. The informants view the importance of integrating EAC to release from the grasp of a rigid syllabus; as A8 mentioned, “We should be able to integrate ESD concepts into the curriculum in a meaningful and relevant way, designing lesson plans and activities that engage students in learning about ESD” (A8: 20). This notion supported by A1 when she believes that the curriculum flexibility will help in connecting to other disciplines of knowledge and benefits students learning “... that is what I see, ESD can be implemented, but it has to be expanded a little. It can’t be very rigid. If we look at History paper 3, there is a question of why the flag is necessary. So, the students have to relate many things” (A1: 14). Embedding EAC allows school leaders to see the interconnectedness of different subjects and apply knowledge from one area to another, promoting a more comprehensive understanding. The interconnectedness of ESD into various subjects was accentuated by A1: “If we can give that awareness, it is imperative to me so that people see a connection. They see the purpose of doing it.” (A1: 20).

The informants mentioned that curriculum flexibility is another challenge in implementing ESD. ESD often involves integrating knowledge and skills from different disciplines. A3 and B6 agreed that a specialized EAC is beneficial to make it flexible and able to be used with other subjects; as mentioned by A3, “Cross-curriculum education modules as a sustainability model, is good, it can cross any subject”. (A3: 236). However, the rigid structure of the curriculum can limit the inclusion of interdisciplinary and sustainability-focused topics, making it challenging to introduce ESD comprehensively. A1 shared his personal experience in History subject that students could not relate ESD in the examination paper due to having less experience in ESD. A7 also agreed that a flexible curriculum helps to connect in and outside of the classroom learning experience as he described, “The continuity of what they learn outside and inside the class is there, so we make a curriculum integration” (A7: 43). School
leaders are viewed to have the ability to link ESD into the curriculum. The ability of how or when to link ESD concepts and principles may not be explicitly stated in curriculum guidelines or standards (A3: 231, Memo: 11). They were even unable to identify entry points or areas where ESD concepts and themes can be seamlessly integrated by thoroughly understanding the existing curriculum. Informants A1 and A2 describe that the teachers need to be able to creatively connect and bridge different disciplines with subject-specific content, promoting a comprehensive understanding of sustainability. The study also found that becoming a content expert and linking ESD into the curriculum are the two factors contributing to the ECF. The informants assumed that they needed to become content experts in ESD or at least have a few experts among the teachers. They made this happen by creating a supportive environment for collaboration, which can help alleviate the challenges of curriculum familiarization as “We do establish professional learning communities or subject-specific networks where teachers can share their experiences, resources, and best practices related to ESD implementation” (B6: 122).

In the code-document analysis, the eight informants’ interpretations were mixed (Figure 1). It indicates a diversity of perspectives and understandings among the informants regarding these topics. Informants A1, A3, A5 and A7 demonstrated a strong understanding of the curriculum, its structure and content, while others may have shown limited familiarity. This discrepancy in curriculum familiarity may reflect their experience and ability to embed ESD across different subjects effectively. The informants expressed different interpretations of the meaning of embedding EAC. Some may view it as incorporating sustainability topics and principles explicitly into various subjects, while others may consider it more as infusing sustainability concepts subtly or implicitly. The interpretations may be influenced by various contextual factors, such as the informants’ prior experiences, educational backgrounds and the specific context in which they operate.

Figure 1. Code-document analysis on the theme of restriction to the exam-based curriculum

Source(s): Created by authors
4.2 Resistance to change

The findings on the ESD challenge found the second theme as resistance to change. This study defines resistance to change in ESD programs as the reluctance, opposition or adverse reactions exhibited by individuals or groups when faced with new sustainability practices or shifts in educational approaches. Resistance to change in the ESD program among teachers and school leaders is a complex phenomenon characterized by cognitive, affective and social responses that impede the adoption and implementation of new sustainability initiatives. Resistance to change in this study arises from three primary codes: (1) internal resistance (CIR), (2) external resistance (CER) and (3) the burden of another task/program (CBT).

Internal resistance is the one that has the most related subcodes based on the interpretation of informant responses. The study refers to CIR as resistance emerging from individuals or groups within the school community, including teachers, staff and even some school leaders, who may resist or exhibit reluctance toward implementing ESD initiatives. It is a kind of resistance within the locus control of the school administration. Deviating teachers from established norms and routines is indeed one of the challenges that school leaders face. Teachers often have established teaching methods, instructional practices and curriculum routines that they are comfortable with and have used for a significant period. Thus, they tend to develop comfort and familiarity with their established teaching methods and routines. A1 describes that it is a common practice in every school he goes through to see that teacher laid back and watch first. A3 also observed a “subsidized culture” that they tend to wait and see. A5 explains the subsidized culture, trying not to break the routine because it may add extra work and tasks to their existing job, as she mentioned by her experience in the previous school “...the syllabus becomes regimented. They play safe, and I am safe, everybody safe, and no need to proceed” (A5: 18).

Engaging teachers’ rejection of ESD is another subcode of the internal resistance that the informants addressed. They believe teachers are the primary facilitators of learning within the classroom. Their attitudes, beliefs and instructional practices significantly influence students’ understanding, attitudes, and perceptions regarding ESD. When teachers reject or resist ESD, it becomes challenging to effectively incorporate ESD concepts and values into their teaching, limiting the transformative potential of ESD as in the excerpt, “In certain situations, there are teachers who accept the addition of the program well, and there are also those who may feel resistance because of some reason that I’m not sure” (A7: 39). All informants mentioned this issue when they experienced the resistance but in different intensity of refusal. They claimed only mild resistance happened in their school for A3, A5, B6, A7 and B8. However, A1, A2, and A4 raised concern that teacher resistance is an alarming issue, and they reacted to this question in a lengthy statement. A1 stated that getting support from the teachers, although not all of them, is good enough for him to work on the ESD agenda. The situation indicates that they recognize the importance of teacher engagement to effectively implement ESD at the minimum level of support from teachers as a positive start. School leaders believe that evaluating the program’s outcome is important, but finding ways to assess ESD is a herculean task. Assessing ESD is crucial for monitoring progress, identifying areas of improvement and ensuring that educational initiatives align with sustainability goals. They put high concern that without a proper assessment of the ESD program, they might miss the opportunity to improve, or worse, that the program would bring less impact to the students, as A1 stated, “because the assessment itself does not reflect the cross-curriculum element of ESD” (A1: 14).

Reasons for schools engaging in ESD relate primarily to external resistance. This study has identified a few external resistances as challenges to school leaders, including (1) educational policy constraints and (2) support from parents and local authorities. While educational policies are vital in shaping the curriculum and school practices, they can inadvertently hinder ESD initiatives. Policies that emphasize narrow academic outcomes or
lack specific mandates for sustainability education might not provide a conducive environment for ESD implementation. School leaders may feel constrained by policy directives prioritizing other educational objectives over sustainability. Informants also noted that many parents and local authorities do not fully understand the importance and benefits of ESD. They might not be aware of how sustainability education can positively impact students and the broader community (A2: 41, A3: 310 and A4: 18). To be precise, A7 mentioned that they may not have had direct exposure to ESD practices or witnessed its positive impact. Without firsthand experience, it can be difficult for them to appreciate the value and relevance of ESD in preparing students for the future. ESD might be a relatively new concept to some parents and local authorities. They may not be familiar with its goals, principles and potential benefits (A2: 37, A5: 46 and A5: 30). It is also interesting to note that parents and local authorities may have diverse priorities. ESD might not be their top concern. Parents and local authorities sometimes prioritize traditional academic subjects over ESD. As the informant describes, “not everyone likes this kind of outdoor activities, very orthodox. They prefer to focus on academics” (A4: 12). School leaders often find themselves overwhelmed with various administrative tasks, including curriculum demands, teacher evaluations and accountability in school management, as uttered by A1: “At school, the principal handles everything” (A1: 36). A1 added that balancing these responsibilities with the integration of ESD can prove daunting: “Most of them will say, ah it is hard, add more work, because in the end, we only see the examination results” (A1: 18). As a result, ESD may be relegated to a secondary role, impeding its potential impact on students and the school community. The dilemma of clerical jobs experienced by teachers and school leaders is not new. It happened long before the introduction of ESD. However, they viewed ESD as a new addition to their work, thus putting the risk of this program on the lower priority list.

A Sankey diagram illustrates the code-document relation in Figure 2 to summarize findings on the second theme, resistance to change. All informants exhibit an equal view on the three primary codes except A5, which views the burden of the task as not a high concern. Based on the number of codes, external resistance received the highest mention, specifically by A1. However, A8 did not detail much on this theme, as all the codes mentioned were less frequent than other informants.

4.3 Low awareness and readiness
Uncovering resistance to change in the previous section opens a discovery of the school leaders’ challenges. The study found that based on the informants’ experience in ESD, there is a pattern in the awareness and readiness of ESD before and during the implementation of the ESD program. They stated they must acquire awareness before escalating ESD’s awareness and readiness to the subordinates. This study defines ESD awareness and readiness as preparation to implement ESD as an essential aspect of their self-development and facilitating the creation of an ecologically responsible learning environment. However, this preparedness comes with challenges, requiring proactive efforts and strategic planning to overcome hurdles effectively. This theme emerged from two primary codes: (1) school leader’s self-development (ASD) and (2) the need for high knowledge (AHK).

Despite the imperative nature of ESD, school leaders often face daunting challenges in thoroughly preparing themselves for its implementation. However, this preparedness comes with its own set of challenges, requiring proactive efforts and strategic planning to overcome hurdles effectively as issued by A7 A5 “No matter what the program is, it’s basic, I must know what I want to do first, that’s a competency that not only me but also the teachers and coordinators had to have” (A7: 15) and “When we’re well-prepared, we can use our skills to plan and implement sustainability programs at school” (A5: 38). Their self-awareness on environmental issues varied as A3, A5 and A7 showed high level of awareness through
their respond to the question of the current issues in ESD. The elaboration on the ESD with the application of ESD knowledge indicates that school leaders’ awareness can vary, influencing their actions. Their accountability to the task is crucial for successfully integrating sustainability principles into the fabric of the school. They articulate the importance of sustainability education, align it with the school’s mission and communicate this vision to stakeholders. A clear understanding of the concept of ESD is essential for school leaders to drive its implementation effectively. With a firm grasp of ESD, they can articulate a clear vision for sustainable education. A8 and A2 addressed the importance of aligning this vision with the school’s mission and goals, ensuring that ESD becomes an integral part of the institution’s identity.

The study identifies the need for high knowledge in ESD as a prerequisite factor to administer the ESD program. It was evidence that principals’ perceived understanding of ESD, most of the definitions provided by six principals were related to the environmental pillar of sustainable development and limited to the conservation of the environment but only two with a more holistic definition. The measure of high knowledge in ESD is best represented by an excerpt from A8 describing ESD: “Another good thing about ESD is that it gets students involved in hands-on learning. It’s not just sitting in a classroom and listening to...
lectures. We want them to get out there, do experiments, work on projects, and solve real-world problems. That way, they learn better and become more engaged and part of the system” (A8: 12). School leaders find it challenging to fully engage in ESD activities if they do not have a thorough knowledge of the concept, as a result of principals’ lack of understanding of sustainable development, ESD and sustainable schools, as well as their responsibility to contribute to the necessary changes required to establish sustainable schools.

The code-document analysis indicated that almost all informants show a balanced perspective on awareness and readiness (Figure 3). A1, A2, and A8 showed little information on this matter as they are categorized as high-performance schools in ESD, and most of the responses exhibit high awareness of ESD. Regarding the need for self-development, A4 and A5 observed contradictory perspectives requiring more investigation.

5. Discussion
The study and interpretation of data on the issues faced by school leaders were organized into three types of challenges represented at the three levels of perspective. The central layer is the awareness and readiness challenges represented at an individual level. The middle layer is the resistance to change (organization level), and the outer layer is labeled as restricting the standardized curriculum (system level).

The premise of this study is that school leaders believe awareness and readiness are essential, but not all are equipped with the awareness. The “nucleus” of the ESD challenges, as depicted in Figure 4, is on the individual level that requires self-awareness and readiness.
by the school leaders. Individual level of challenge refers to challenges faced at the personal level of school leaders. It relates to attitudes, beliefs, knowledge gaps and behaviors that obstruct the successful integration of sustainability principles into teaching, learning, and decision-making. Awareness and readiness are labeled under this heading. A study concurred that teachers’ awareness of ESD is vague and unable to act on the awareness, although they better understand traditional environment concepts (Karpudewan et al., 2013).

On the contrary, a recent study of teachers’ perception of ESD integration in the educative process revealed positive awareness despite poor attitudes and a detrimental state of behavior towards ESD (Khalid Malik et al., 2022). ESD’s multidimensionality, lack of exposure, mindset shifts, curriculum demands, long-term commitment and leadership context contribute to the complexity of integrating ESD principles into educational leadership. Resolving these challenges requires concerted efforts at both individual and systemic levels.

Of the three emerging themes on ESD challenges, the resistance to change is the only theme that follows the global concerns (Santorello, 2019; Winter and Cotton, 2012), as discussed in the literature review section. These challenges are grouped at the organizational level and refer to the barriers and complexities that arise within educational institutions, such as the organization’s internal structures, societal and culture, which can impact the successful integration of sustainability principles into their educational activities. Studies found that resistance to change is one of the predicaments that lead to other issues, such as a lack of understanding, interest and awareness of ESD (Santorello, 2019; Soysal, 2016; Winter and Cotton, 2012). Many school leaders have encountered resistance for reasons that range from concerns over time constraints and lack of professional development to debates over sustainability as an ideology and ESD as indoctrination (Lozano et al., 2015). For example, Carbach and Fischer (2017) study indicates that time and workload are prominent challenges arising from external restrictions relating to conditions and circumstances that constitute the context of ESD. Resistance to change is a significant impediment to organizational change implementation. Teacher resistance to change is also the main reason the standardized curriculum change fails or achieves superficial change (Chen and Kompf, 2012). As ESD is a relatively new concept, many teachers have received no training, highlighting the need for continuing professional development (CPD) courses in this area (Moore et al., 2019). The need for standardized curriculum and CPD among teachers leads to the outer layer of the ESD challenge, the systemic challenges.

The study’s findings highlighted a noteworthy trend of systemic challenges, where the ESD limitation related to the restriction on the standardized curriculum. It received the highest number of mentions during the interviews (groundedness = 192). This challenge is classified as a systemic ESD challenge due to its broader structural, institutional, policy and operational limitations that impede the effective integration of sustainability concepts into educational systems. ESD, by definition, necessitates adaptation and flexibility (Hallinger, 2022; Milne et al., 2006). The essence of ESD lies in its ability to transcend the boundaries of

Figure 4.
The level of school leaders’ challenges in ESD

Source(s): Created by authors
traditional subjects and curricula, fostering a holistic understanding of ESD that encompasses environmental, social and economic dimensions. Parry and Metzger (2023) concurred that the current textbooks follow the national curriculum but are also very restrictive in how the content is delivered. The primary purpose of the ESD is as a guiding light for equipping learners with the knowledge, skills and values needed to address complex global challenges. It is crucial to recognize that ESD is not a standalone addition to the curriculum but should seamlessly integrate and complement the existing educational framework (Laurie et al., 2016). However, the prominence of the restriction on the national curriculum within the study’s findings implies that ESD might face barriers due to rigid curriculum structures that do not readily accommodate interdisciplinary and holistic approaches (Kandangama, 2018). Similar findings emphasized reforming curriculum content and redesigning teachers’ training programs, which demonstrated a dire requisite to integrating sustainability-related content into teacher preparation courses to develop a better ESD understanding (Khalid Malik et al., 2022). To fully harness the transformative potential of ESD, educational systems must embrace the concept of flexibility (Holfelder, 2019). Educational institutions may provide a rich and fulfilling learning experience by allowing ESD to coexist with the current curriculum. This method equips teachers to integrate sustainability ideas into all subject areas, fostering critical thinking, problem-solving and a thorough comprehension of how various global concerns are interconnected within the designated curriculum.

The synergy between individual, organizational and systemic levels is critical for successful ESD implementation. Individual efforts drive the personal commitment and engagement necessary for change. In contrast, systemic efforts provide the structural framework, resources and support needed to enable individuals to enact change on a larger scale. For instance, the educator with ESD training (individual level) might contribute more effectively to curriculum development and policy advocacy (systemic level), resulting in comprehensive ESD integration. However, this research demonstrates that for an ESD implementation to be effective, the core level of problems (individual) must be overcome first, as this component influences the outer level of challenges. The suggested layer of ESD challenges ascends from the inner circle of individual challenges to the outer layer of systemic challenges. The order of events dictates that overcoming such obstacles must start with the school administrators’ capacities and skills to set themselves up for a successful ESD implementation, then move on to more significant obstacles.

The study’s findings have practical implications for school leaders, educators, academics and policymakers invested in promoting sustainable practices in education. The findings of this study would be of interest to school leaders, educators and academics who are concerned about ESD and its implementation in schools. For school leaders and educators, the findings can serve as a valuable resource for understanding the barriers and obstacles they may encounter when implementing ESD in their schools. It can help them identify common challenges and learn from the experiences of others who have faced similar situations. Academics interested in ESD and its challenges among school leaders can benefit from the study’s comprehensive analysis. It provides a valuable knowledge synthesis, highlighting the key themes related to ESD challenges. The key themes can serve as a foundation for further research and exploration, allowing academics to deepen their understanding of the topic and contribute to the existing knowledge on ESD implementation.

Additionally, policymakers and education authorities can find the study’s results relevant to their work. Understanding the challenges school leaders face can inform the development of supportive policies and strategies that facilitate the integration of ESD into education systems. Policymakers can use the insights from the study to design initiatives and allocate resources that address the identified challenges, promoting the successful implementation of ESD in schools at a broader scale.
6. Conclusion
This study explores the ESD challenges from the viewpoint of Malaysian school leaders. The three levels of challenges in ESD, as perceived by the informants, might positively contribute to the development of solutions for further ESD improvement. Due to their nature, ESD's individual, organizational and system-level challenges are not limited to only one specific program (JSEAP). However, the different levels of challenges can spark broader discussions and involve different study models to induce new meaningful knowledge in ESD. They provide valuable insights into the challenges experienced by school leaders in implementing ESD, offer an overview of the recent phenomena in ESD, and contribute to the ongoing discourse on sustainable education. This study’s findings can serve as a basis for developing a new ESD strategy, training strategies and intervention strategies designed to optimize knowledge within existing ESD schools or the future new ESD school model, particularly in reorienting school leaders toward successful ESD implementation.

Additionally, more research-based evidence is required to delve deeper into the impact of inner-level challenges on outer-level challenges or vice versa. It can be done through a quantitative or mixed-method study to find the causal relation between the three levels. The study’s recommendations and strategies can be used to inform their practices and guide them in developing practical approaches to ESD implementation for now and in the future.

References


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