Article

Values-Based Education for Sustainable Development (VbESD): Introducing a Pedagogical Framework for Education for Sustainable Development (ESD) Using a Values-Based Education (VbE) Approach

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Abstract: It is widely recognized that quality and sustainable education is a key enabler for all the SDGs, and that affective education significantly enhances such education. However, while certain pedagogical approaches have been found to support the competencies and skills within Education for Sustainable Development (ESD), there is no tangible framework to facilitate ESD in classrooms. This paper introduces and demonstrates Values-based Education for Sustainable Development (VbESD): a comprehensive, replicable, and actionable pedagogical framework that explicitly and holistically fosters sustainability as an intrinsic value by using the principles of Values-based Education (VbE) in an ESD context. The VbESD framework presents eight pillars—modelling, Inner Curriculum, reflection, atmosphere and ethos, curriculum, leadership, ethical vocabulary, and sustainable school operations (MIRACLES)—that holistically facilitate the development of intrinsic positive values into quality education for sustainable development. Using a deductive-inductive approach with two mixed-method surveys and 157 responses, VbESD was developed and validated with significant interest in, support for, and willingness to implement the framework. All surveyees responded neutrally or positively to valuing sustainability, believing it is important as an intrinsic value, incorporating sustainability into the educational system, and implementing the VbESD framework. This study proposes VbESD as a potential method for primary educational institutions and educators to nurture resilient, ethically intelligent change-leaders who can champion the social change needed for a peaceful, prosperous, and sustainable world.

Keywords: Education for Sustainable Development; Values-based Education; affective education; sustainability education; education for sustainability; e-learning

1. Introduction and Background

1.1. Context and Importance of Sustainability Education and Education for Sustainable Development (ESD)

The movement for Education for Sustainable Development (ESD) was commenced in 1992 at the United Nations Conference on Environment and Development to nurture students to become engaged, responsible citizens who can create the needed social change for a peaceful, prosperous, and sustainable world. In light of such momentum, there are various terms used often interchangeably for ESD and related pedagogy, such as environmental education, sustainability education, and education for sustainability. For the context of this article, 'sustainability education' will be used as the collective term for any educational approach or pedagogy that focuses on teaching about the environment, climate change, sustainability and sustainable development, and Education for Sustainable

Development as a type of sustainability education with a specific roadmap [1] and defined competences and outcomes as outlined by UNESCO and UNECE [2,3].

It is thoroughly recognized that ESD is crucial for the Agenda 2030 and the Sustainable Development Goals, the global framework to achieve a sustainable future for our planet. According to UNESCO [4], "Education for Sustainable Development (ESD) empowers learners of all ages with the knowledge, skills, values, and attitudes to address the interconnected global challenges we are facing, including climate change, environmental degradation, loss of biodiversity, poverty, and inequality". This growing recognition of the need for sustainability education now needs to be paired with concrete action and visible results, alongside various issues present in the education system to not only deliver sustainability education, but also to achieve sustainable education [5–7]. There exists substantial literature around recommendations for sustainability education, case studies of implementations, and explorations of challenges, as well as many pedagogical models to deliver such education [8–10]; however, many models are either general and high-level, and thus not easily actionable (i.e., the implementing body has to first invest significant capacity to distil the model into specific, tangible actions and steps), or very specific (i.e., to a field, topic or region) and difficult to make applicable to a large number of schools. The uptake of innovative pedagogy is slow, with "schools remain[ing] largely seen as very resistant places for innovation" [5]. For example, most current education systems do not place affective learning outcomes—the demonstration of values, attitudes, and beliefs—as primary goals alongside cognitive outcomes. Yet, it is becoming increasingly well-established that sustainability education takes more than cognitive education and demands for all domains of learning—cognitive, psychomotor, and affective education—to be engaged [11,12]. Not only is the learning content important, but the way that the content is taught as well as the environment in which it is taught present crucial factors for successful sustainability education. It is thus critically important for the world's education systems to commit to a pedagogical shift to embrace more affective education and sustainability education, so that future generations have the educational environment that drives societal and environmental well-being simultaneously with academic skills and knowledge.

This article aims to develop a working model for Values-based Education for Sustainable Development, a new framework to facilitate this pedagogical shift, and to gauge the level of foundational support and interest of the framework from the general public. The central question the article aims to investigate is: Can we, and how can we, use the principles within Values-based Education to structure an educational and pedagogical framework that embeds sustainability as an intrinsic value within the educational system and its students to drive Education for Sustainable Development?

UNESCO, the UN's leading agency on Education for Sustainable Development (ESD), described ESD as a "key enabler of all other SDGs" [4]. Indeed, not only is ESD a crucial element of the fourth Sustainable Development Goal (SDG) of quality education, it is how all the other SDGs are brought to life—the foundation for the success of all other SDGs.

Currently, a large portion of the literature available for ESD and sustainability education is in higher education, usually at the post-secondary level [8,10]. Approaches for ESD and sustainability education that have been implemented most commonly fall within two types: 'integration' and 'insertion', where integration refers to a more holistic approach in which sustainability is fundamentally and transdisciplinary embedded, and insertion is a more surface-level incorporation of sustainability in often-disconnected subjects [9]. Currently, many educational settings introduce sustainability either in general or specific fields as well as in operational ways not related to education, with the educational and operational domains independent from each other. A plethora of literature reveals the importance of interdisciplinary and transdisciplinary action and collaboration, as well as the reinforcement of learning outcomes outside rigid academic structure [13].

Primary education provides an invaluable setting to start affective education, where learning is focused on developing values, beliefs, and attitudes that will greatly influence and benefit the student life-long [14]. Primary education is often considered the most

influential of all education levels, where teachings may not be explicitly recognized yet practiced and formed implicitly. Successful primary school intervention and development of values and beliefs related to sustainable development will considerably lessen the barrier for further development of sustainable behaviours in middle, secondary, and post-secondary education.

1.2. Fostering Sustainability as an Intrinsic Value: The Opportunity for VbESD

The role of values has been identified as crucial to creating transformative change towards sustainability and sustainable development [15–17]. Specifically, biospheric and altruistic values are associated with pro-environmental behaviours. Values are usually considered to form during childhood, influenced by the individual's needs, traits, experiences, culture, socialization, and temperament, and to remain relatively stable once formed [18]. Values drive intrinsic motivation, which in turn is associated with not only long-term success, including achievement, quality education, well-being, student achievement and student–teacher relationship quality, but also pro-environmental behaviour [19–22]. Affective education that successfully fosters intrinsic values and motivation—especially for sustainability—is therefore significantly relevant to sustainable development and especially to SDG 4: Quality education [23].

Values-based Education (VbE) was developed and founded by Dr. Neil Hawkes in 2006 and has now become a successfully-established educational model to deliver quality affective education to over 100 primary schools across the world and primarily in the United Kingdom (UK) [24]. A value is a principle that guides our thinking and behaviour, underpinning all behaviours, attitudes, personalities, mindsets, and choices, and is universal [24]. VbE underpins educational settings with universal positive human values such as respect, compassion, humility, trust, and integrity to create a transformational shift in the way that students learn [24]. Its students are immersed in the practice of such values, building the foundation to live with them on a daily basis, inside or outside the classroom. Indeed, VbE has been highly successful in facilitating affective learning. Other related concepts include values education, moral education, as well as character education and development. However, Values-based Education is unique in the depth of understanding and practice it fosters within its students to live the set of positive values embedded into their education setting.

VbE presents a significantly crucial shift for education and the future generation as a whole. Its methodology and theory build its impact for effective affective education. Its main audience consists of primary schools, allowing the shift for positive cultural transformation to start from a young age and create a ripple effect up the education system that will influence all other generations along the way [24].

The key outcome of VbE are the development of ethical intelligence and personal holistic competence (PHC)—which Hawkes describes as "the ability to deal with the complexity of life in an ethical and empathetic manner, whilst maintaining personal integrity and well-being" [25]. PHC is developed from a rich emotional intelligence—the knowledge, skill, ability, and courage to use self and interpersonal awareness in the right way—and both of them make up an individual's personal moral compass. Ethical intelligence is more than just having knowledge of what is 'good' or 'bad', as reality creates countless nuances that complicate the situation. Instead, it is knowing how to make decisions that honour the individual's whole suite of values, even when there are conflicting values at hand. The development of these invaluable competences requires a deep understanding and experiential learning of the values, self-leadership to practice and live the values, as well as a suite of holistic, positive values that are intrinsically embedded within the individual—all of which the Values-based Education model successfully nurtures in its schools.

Currently, the VbE movement has spread to around 20% of primary schools in the UK and over 40 countries and is continuously expanding [26]. Its impact is undeniable; there is statistical and anecdotal evidence that shows the difference having a values-based educational environment makes in a school. Since even before its official inception, Neil

Hawkes had found that teaching values in a meaningful, profound way improved the quality of the school's education significantly [25]. There were less behavioural issues, students performed better academically, and there were quantifiably more positive relationships built between students as well as students and staff in the school. After adopting a values-based educational approach, the school community becomes more harmonious, purposeful, and impactful [27]. A longitudinal study by Lovat et al. [28,29] found a positive correlation between VbE students' personal development and academic diligence.

In the understanding of a value as a principle that guides thinking and behaviour, sustainability fits profoundly as a value. Therefore, in order to empower the "values and attitudes" within the "knowledge, skills, values, and attitudes" of Education for Sustainable Development, sustainability needs to be nurtured as an intrinsic value within society and its members, where (1) it is understood not simply in a theoretical manner, but in a way that is embedded into an individual's intrinsic motivation; and (2) in situations where sustainability may be in conflict with other values, sustainability is understood well enough that each intrinsic value can be weighed accordingly and a decision made that will "best honour your whole suite of values of which sustainability is one of them" [26]. Values-based Education therefore presents an opportunity to be used to foster sustainability as an intrinsic value.

While VbE does not explicitly mention sustainability in terms of ESG components, the ultimate product of a generation built on VbE is exactly human sustainability. Therefore, there is a significant opportunity for the merging and synergy of VbE and ESD to create VbESD, which simply aims to bring sustainability from the periphery of VbE into its root in order to realize the outcomes of ESD in a primary education setting (with potential to extend its reach into secondary and higher education settings). The parallelism between different elements of VbE and ESD are presented in Table 1.

Table 1. Parallels between VbE and ESD.

Values-Based Education	Education for Sustainable Development
Leadership pillar encourages VbE students and teachers to lead their values and encourage others' integrity as well	Empowerment of people to take responsibility for present and future generations
Integrate values in a holistic manner into the school	Integrate sustainability issues in a holistic manner into the school
Values-based implies that all aspects of life, both personal and professional, is founded on the way that positive human values are used as principles to guide our thinking and subsequent behaviour	ESD is a crucial, key enabler for all other SDGs and is interconnected to all aspects of sustainable development as a foundational tool, to build capacity and empower sustainable development on all fronts
Societal transformation for a more ethically intelligent world and a transformation of an educational setting to be grounded by values and creating that shift in pedagogy within its educators	Societal transformation for a more sustainable world and a transformation of all aspects of the learning environment through a whole-institution approach, including transformation of what it means to be an educator
Values need to be imbedded within the educators and all staff in a school need to be committed and a part of the implementation	Competences for educators are outlined and need to be possessed in order for them to be relayed onto the students

It is well-established that sustainability as an intrinsic value cannot work on its own; it is not an isolated value. To reach full, deep-rooted sustainability, individuals and society as a whole need to develop other positive values and their ethical intelligence as well [30,31]. Thus, VbE acts as the perfect foundation to build ESD, not solely teaching sustainability as the one value but incorporating other values such as respect and kindness (i.e., for the planet, plants, animals, and people), responsibility (i.e., for our actions and environmental and social impact), trust (in each other's efforts and commitments), integrity (i.e., for our own values and commitments), peace and hope (i.e., for our societies and planet), collaboration and joy, amongst many others. Values-based Education has the crucial

methodology to add sustainability into its foundation, and by embedding sustainability as the root of the other values, it gives a concrete purpose for why such values are needed.

As crucial as affective education is to sustainability education, it has also been repeatedly observed as its main challenge. As Warburton [32] precisely points out, "the challenge for educational institutions is not simply to teach concrete facts about the environment but to create an active, transformative process of learning that allows values to be lived out and debated, and permits a unification of theory and practice." This presents a perfect opportunity to utilize the VbE groundwork to tackle this challenge and imbed the values from theory into practice. Just like López-Alcarria [33] used the Agile methodology in education to foster ESD competencies, this paper demonstrates the use of VbE methodology within ESD to foster its competencies.

In the following sections, the best practices and barriers to sustainability education are identified before presenting a thorough description of the proposed VbESD framework. The methodology to create and validate the framework is then outlined, and the survey results shared. Finally, the findings are discussed and further interpreted to provide guidance for the VbESD framework's next steps.

2. Literature Review

To develop the VbESD framework, a literature review was conducted to understand effective pedagogical principles of sustainability education as well as the limitations of current pedagogical frameworks for ESD. Five enabling pedagogical principles and four common barriers are identified and presented below.

2.1. The Importance of Childhood Development to Sustainable Development

Much of historical unsustainable development has been rooted in unhealthy relationships to nature, the land, and the Earth; to other human societies and communities; and to oneself. Therefore, each of these relationships must be healed in order to achieve true human and environmental sustainability. This sentiment is not new; Hill [34] expressed in 1999 that "What is happening socio-politically and environmentally in the world is the result of adult activity; and adult activity is the result of child development. Thus, to achieve social and environmental sustainability we must sooner or later examine the process of child development". Mbebeb in 2020 [35] stated that "An important issue in sustainability debates, although often neglected, is the psychological argument that societal sustainability depends on mental and behavioural sustainability; thereby informing strategies in early childhood education. . .sustainable education must begin in early childhood, as the values, attitudes, behaviours, and skills acquired in this period may have a long-lasting impact in later life". Samuelsson and Yoshie [36]'s UNESCO report "The contribution of early childhood education to a sustainable society" outlined diverse insights, perspectives, and experiences across 16 countries related to the importance of childhood education to foster values, attitudes and skills that support sustainable development. In it are case studies of educational centres fostering 'sustainability ethic' as well as 'eco-literacy' and 'eco-intelligence'; philosophies around 'harmony' between humans and nature, people, and society, and individual harmonious development; and suggestions to incorporate holistic development of children including physical, conceptual, social, spiritual, and emotional to build a sustainable society.

2.2. Innovations in Affective Pedagogies for ESD

Many pedagogies for sustainability education exist, both within and outside of ESD. These include Education for Sustainability (EfS), environmental education (EE), sustainability education (SE), climate change education, and the multidisciplinary umbrella for all these approaches and more called Environmental and Sustainability Education (ESE) [37]. In 2020, Hadjichambis and Reis [38] introduced the concept of Education for Environmental Citizenship (EEC) and its corresponding pedagogical approach, on which Monte and Reis [39] built specifically for primary education. The EEC for primary education

integrates eight educational methodologies, including socio-emotional learning, critical inquiry learning, outdoor learning, collaborative learning, nature-based solutions learning, and more [39]. Each of these pedagogical approaches contribute to the goal of social and/or environmental sustainability with varying emphases on different aspects, principles, or learning outcomes as well as varying degrees of affective learning.

Dunlop and Rushton [40] found that education has the potential to transform environmental emotions and rewrite existing negative emotions associated with environmental sustainability (i.e., powerlessness, anxiety, hopelessness, fear, etc.) and the need for emotionally responsive pedagogies that can "identify responsibilities, improve coping potential, and improve future outlook" as a way to take intergenerational responsibility. This aligns with the meta-analysis by Bamberg and Möser [19,40,41] that found behavioural intentions having the highest predictive power for pro-environmental behaviour. Grund and Brock [42] urges educational interventions to therefore invest in emotional and sentimental environmental concepts rather than focusing on environmental knowledge. Mindfulness-based, contemplative teaching approaches have recently begun to be researched as a new way to combat socio-ecological challenges and promote social action on sustainable development [23].

2.3. Key Effective and Enabling Pedagogical Principles for Sustainability-Related Education

A wide range of literature exists for different pedagogical concepts, practices, principles, and frameworks that have been shown effective for sustainability-related education. A few common themes have been identified below as key enablers for sustainability education, with the aim to integrate each of them within the VbESD framework.

(E1) Active engagement and social learning: There is a focus on increasing student engagement and participation in the classroom, in order to develop, practice, and solidify the affective, social, and cognitive knowledge and skills attained [9]. Sustainability education has been recognized to need student engagement beyond academic facts to be successful. Indeed, active engagement and social learning activities are significantly more impactful than memorization and rote learning. Only with active engagement can intrinsic interest be fostered, skills be practiced and applied, concepts experienced, and relationships built [32]. Social learning is a model where there is a more equitable transfer and sharing of knowledge, where knowledge from all members of the community (and in this case, classroom), is valued and shared in formal, informal, and non-formal ways [43]. Creating meaningful engagements with either concepts, places, or people is integral to increase the understanding of what is taught in the classroom, as well as in extracurricular activities [44]. In that way, it is therefore crucial to sustainability education, where knowledge of sustainability is meaningless unless understood and taken up as a personal value.

(E2) Democracy, student involvement and student-centred learning: Wade [43] found that democratic approaches to learning and leadership build more capacity for sustainable development than authoritarian, top-down hierarchical models, and that leadership for sustainability precisely required democratic cohesion and a sharing of commitment, action, and leadership itself. In addition to active engagement is the necessity of including student perspectives and desires into their own learning. For example, Nwagbo [45] found that the guided inquiry teaching method, a "student-centred, activity-oriented teaching strategy...to enable students [to] discover answers to the problems at hand" greatly outweighed expository teaching methods, a teacher-centred approach where "the teacher delivers pre-planned lesson to the students with little or no instructional aids...which places the teacher as the sole possessor of knowledge, and the students as passive recipients of knowledge". Co-design is another valuable participatory approach that can facilitate student involvement and taking ownership of their learning [46]. It is precisely the creation of meaningful interactions between the teacher and student alongside student involvement and engagement that solidifies the teachings within sustainability education, and successful sustainability education requires the shift from a teacher-centred to a student-centred approach, where the focus is less on pushing specific content and more on developing

the students' capacities to understand and adopt the values, skills, and leadership for sustainable development.

(E3) Purposeful, deep learning: Deep learning refers to the "key strategy by which students extract [underlying] meaning and understanding from course materials and experiences" [32]. It is a contrast to rote-learning and involves a high level of engagement and understanding of the topic at hand; learning for comprehension instead of description. For deep learning to occur, there needs to be an inherent motivation to understand and engage with the topic, which is why student interest is crucial and a factor that makes its pedagogy challenging [32]. Warburton [32] also argues that many traditional pedagogies offer superficial levels of engagement with material, regardless of whether it has deeper-teaching intentions, and that the sciences are more prone to adopting excessively serialist styles of teaching that focus on detail and specificity instead of a bigger, underlying purpose. Combating such shortcomings thus needs more attention. Deep learning is highly important for sustainability education, because sustainability is fundamentally a big-picture topic and requires an understanding of the bigger-scale impacts in order to be attained; it is inherently the ultimate underlying principle, cause, and purpose of sustainability education.

(E4) Interdisciplinarity and transdisciplinarity; holistic and integrative approach: Not only Wu [8] who stated that ESD "include more social and economic factors, not just environmental ones" but all articles examined in the literature review, whether directly or indirectly, identified interdisciplinarity and transdisciplinarity to be a crucial element within successful sustainability education. Interdisciplinarity connects the importance and the applications of sustainability across multiple fields, courses, topics, and subjects and creates space for collaborative work to advance sustainable development. Transdisciplinarity fosters co-creation across multiple stakeholders and practices. For a topic with such wide impacts across all fields, only such holistic approaches can paint its full picture for the learner [13]. The 'integration' approach and interdisciplinarity has been echoed by many researchers as being absolutely crucial to sustainability education.

(E5) Affective education: As Lovat et al. [28] noted over a decade ago, "the taxonomic notion that cognitive learning outcomes are separable from affective or social ones comes to be seen as inadequate...[there is a] need for new pedagogy that engages the whole person rather than just the cognitive person". Research on pedagogy and quality education consistently points out that learning needs to be a holistic process; affective learning is just as important as cognitive learning, and although the challenges faced today need cognitive intelligence to mitigate, the roots of the challenges can only be tackled through affective, social competency [47]. Affective learning is especially important for sustainability education, where values, beliefs, and emotional connections to the topic act as the intrinsic motivators for further learning on, creating solutions for, and the leading of social and environmental change [48]. It is only with the combination of both cognitive and affective alignment to sustainable development that knowledge can turn into action, plans turn into practice, and possibilities be made reality [47]. Many curricula well-developed in cognitive learning outcomes lack affective outcomes, and this is one shift that is imperative to successful sustainability education.

2.4. Key Barriers and Limitations of Current Pedagogical Frameworks for ESD

Existing literature also includes various barriers and limitations to current frameworks and practices to facilitate ESD. Common themes have been identified below as key barriers for sustainability education. The VbESD framework will work to address and reduce each of these barriers.

(B1) Vague and varied definition of sustainability: Due to the complexity and inter-sectionalities of sustainability, it is difficult to provide a standardized definition across an entire field or sector. Even the definition of sustainability enacted in 1987 by the Brundtland Commission [49] of "meeting our own needs without compromising the ability of future generations to meet their own needs" is, reasonably, inherently non-specific and broadly-

applicable. The overarching quality of this definition is beneficial for its applicability, but poses challenges when implementing sustainability policies and standards in specific fields. The lack of consistent semantics and clarity creates confusion and hinders its introduction into the curriculum, especially within higher education [9]. It also creates heterogeneity within the knowledge, attitudes, and practices related to sustainability and an ignorance of non-environmental aspects of sustainability [50].

This barrier is also present on another level, where differing fields and disciplines have different understandings of the term sustainability [51]. Technical fields are often found to reduce the definition of sustainability to a single aspect and are inconsiderate towards the social, ethical, cultural, and global dimensions of sustainability. This creates a tension between more interdisciplinary and holistic definitions and more narrow, instrumental definitions of sustainability that are easier to insert into the curriculum, but less impactful [9]. These varieties of meaning of sustainability within different fields is precisely why transdisciplinarity and interdisciplinarity are crucial for sustainability education, because sustainability and sustainable development is inherently not a disciplinary concept. Overcoming this barrier needs both a shared, overarching definition as well as standardized definitions of related, specific concepts that address or eliminate the confusion of interchangeable terms.

(B2) Lack of educator and organizational capacity to change curriculum and pedagogy: Change to any structure or system requires capacity. Figueiró and Raufflet [9] identified that integrating sustainability into an educational environment needs the environment's staff to have the capacity to properly do so. Staff and capacity development therefore is a significant enabler for sustainability education, where staff have the time, energy, motivation, and resources to model and teach sustainable behaviours and skills in the classroom [9]. Staff-specific barriers include the lack of educator knowledge, motivation, and commitment. Teachers and administrators, especially if they did not grow up with education on climate change and sustainability, lack the formal knowledge and appreciation for sustainability education to competently deliver such education [9]. Without the basic knowledge and thus confidence and preparedness, educators would need to take their own time to learn, which is highly unlikely in the already-overcrowded curriculum [52,53]. To expedite this, innovative pedagogical techniques are often studied and recommended. Techniques such as action-learning, experiential learning, case study methods, project-based learning, problem-based learning, reflective learning, service learning, and adaptive learning are amongst some pedagogical approaches used that restructure the traditional teacher-centred and passive learning methods [9,31,54,55]. All of these approaches demonstrate the bigger picture of a "shift from a classical teaching model towards a more interactive one in which students participate in the co-construction of knowledge and understanding" [9]. However, this shift is easier said than done, as underdeveloped mandates for sustainability education in pedagogy and curricula design as well as the pressure to maintain academic foci remain barriers to the resources and attention needed for such capacity development and subject integration [52,54].

(B3) Excessive science focus: Aikens et al. [52] noticed upon a systematic review that there is a heavy association of sustainability education with science, particularly environmental science. This association does not reflect the intersectionality of sustainable development, and instead limits it while creating the silo effect that is highly prevalent within the attempts of integrating sustainability education [52]. Currently, most sustainability education is inserted into sciences courses, and this is the case in Ontario where a standalone Environmental Science course in secondary education was removed after a "failure of the infusion model of sustainability education", and where "after this switch...very little ecological education was being taught" [52]. Instead, it was observed that sustainability was often taught as "decontextualized scientific knowledge versus sociocultural considerations across the syllabi", which leads to disciplinary bias towards the sciences [52]. This excessive focus and association of sustainability education in the sciences presents a barrier towards its integration into all subjects [52].

(B4) Lack of policy and higher-level commitment: In order to create bigger-level change, leaders need to be involved. While there is a plethora of grassroots-level initiatives, ideas, plans, and innovations that are all impactful to the classrooms they are implemented in, the current climate crisis cannot be curbed with solely bottom-up initiatives. In the literature surrounding environmental and sustainability education, various policy-related barriers emerge. A systematic review of environmental and sustainability education policy trends by Aikens et al. [52] observed a lack of balance between the pedagogical dimension and the dimensions of policy development and enactment, which hinders a full-picture understanding of the role of policy within sustainability education. There is also the inherent lack of research surrounding the implementation and degrees of success of sustainability education policies [52]. Aikens et al. [52] described that a majority of the existing documentation on sustainability education policies largely "self-reports from government or sustainability organizations that function as 'uncritical catalogues that focus on successes, and are silent about problems and failures'".

From this literature review, it is clear that there is significant value in developing a comprehensive, holistic pedagogical framework that combines sustainability education and affective education for direct primary education application. In order to ensure the effectiveness of such a pedagogical framework, the above key enablers and barriers must be addressed in full. The next section outlines the VbESD framework to fill this need, and how it actively does that by applying the principles of Values-based Education to ESD.

3. Theoretical Framework

Despite ESD implementation in educational institutions and systems around the world, there is limited large-scale empirical evidence for the extent of ESD implementation in classrooms and the effectiveness of the existing approaches [56]. The VbESD framework aims to build upon existing approaches, integrating best practices as well as expanding the goals of existing pedagogies to include both human and environmental flourishing. This goal of social and environmental sustainability grounds the VbESD framework and is the manifestation of sustainability as an intrinsic value and its subsequent evolutions into an individual's beliefs, attitudes, mindset, behaviours, and decisions.

Hill's [34] observation reinforces the importance of child development to sustainable development, supported by recent researchers as well. Indeed, an individual's educational system and environment has an immense potential and ability to influence not only their academic success, but to cultivate resilience towards their personal fulfilment and well-being, the skillsets to develop meaningful relationships with others, and their intrinsic motivation and purpose to build a better world—all of which are outcomes integrated within VbESD. This section introduces the VbESD concept and framework, including each of the VbESD pillars and how they individually and connectedly foster sustainability as an intrinsic value school-wide.

3.1. The Foundational Concept of VbESD

Values-based Education for Sustainable Development (VbESD) aims to apply the principles and methodology within the Values-based Education model into a model more explicitly focused on sustainability and sustainable development [57]. There are seven pillars of VbE, which spell out MIRACLE: Modelling; the Inner Curriculum; Reflection; Atmosphere and ethos; Curriculum; Leadership; and Ethical vocabulary. These seven pillars sit at the centre of VbE's methodology for how they are able to foster values intrinsically. Seeing the VbE model as holistic, each one of its seven pillars are needed for its success and work together to create the beneficial results observed in VbE schools. In that respect, the VbESD framework builds on top of every one of VbE's existing pillars, in order to apply a more focused lens on sustainable development. In addition, VbESD adds a pillar for institutional sustainability, on the operations level. Together, the pillars of VbESD bring sustainability into a school in a holistic and integrative manner, from the roots and embedded within the school's core values. Table 2 shows how the seven VbE pillars can

easily be incorporated into an ESD context to build the VbESD framework, as well as maps this foundational concept to each enabler and barrier identified in Sections 2.3 and 2.4.

Table 2. Extending VbE Pillars with ESD to create the VbESD framework.

Pillar of VbE	Within VbE	How it Can Apply into ESD within the VbESD Framework	Tangible Examples in VbESD	Relationship to Key Enablers and Barriers to Sustainability Education
Modelling	All staff in a VbE school model the values in their day-to-day behaviour and language	All staff in a VbESD school model sustainable behaviour and include sustainability in their language on a daily basis	Staff recycle, are energy-conscious and water-conscious, use reusable bottles, containers, bags, utensils, and/or other items	B2, E5: Builds capacity and decreases barriers for educators to incorporate sustainability education and an attitude for sustainable living into the classroom without formal lesson plans and being a subject matter expert
Inner Curriculum	A structure to foster self-awareness, self-understanding, and self-regulation; intentional activities and interactions to attune both the student as well as the teacher to the student's authentic self, bypassing external walls put up from negative experiences	A structure to foster self-awareness, self-understanding and self-regulation for sustainability in addition to and in connection to the other values for students to relate their actions to the bigger picture and impact	Staff embed intentional activities and interactions that hone students' self-regulation and leadership to bypass the main barriers of sustainability such as instant gratification, convenience and materialism	E1, E2, E3, E5: Empowers learners to cultivate mindfulness and resilience, which directly fosters and strengthens social learning, democracy and student-centred learning, deep learning and affective learning
Reflection	Dedicated time to think about one's feelings and thoughts, and be present with peace and calm as well as visualize the values	Dedicated time to think about one's feelings and thoughts, and how each value connects to a sustainable world and to visualize that impact	During reflection time, staff intentionally and explicitly relate how each value connects to a better world, and create visualizations of that with their students	B3, E4: Connecting values with sustainability expands the application of values and sustainability to more than just science but to the world, and reinforces the holistic, inter- and transdisciplinarity of sustainable development
Atmosphere and ethos	A positive, friendly, encouraging atmosphere where positive values are foundational to the operation of the school	An atmosphere that demonstrates a high commitment and value for sustainability provides and important constant reminder for students that everything can be related back to sustainability, where sustainability is an added foundation to the operation of the school	School-level processes are also sustainable: Cafeteria uses reusable plates/cutlery and procures local, sustainable ingredients, staff are paid a living wage, school uses recycled paper and supports local and sustainable businesses, has sustainability initiatives and explicit commitment to social and environmental sustainability *	B4: Makes higher-level commitment from the institution visible and explicit to empower subsequent commitment from educators, staff, and students

Table 2. *Cont.*

Pillar of VbE	Within VbE	How it Can Apply into ESD within the VbESD Framework	Tangible Examples in VbESD	Relationship to Key Enablers and Barriers to Sustainability Education
Curriculum	How values are incorporated within their existing curriculum, through formal, informal and non-formal lessons	How sustainability is incorporated within their existing curriculum, through formal, informal, and non-formal lessons	Each subject is related back to sustainability and sustainable development, and discussions, assignments, projects and activities as well as values are connected back to sustainability	E3, B2: Facilitates deep learning of sustainability and the understanding of its importance to cultivate intrinsic motivation for sustainable behaviours. Having the curriculum also builds capacity for educators as they do not need to develop or curate their own resources and lesson plans outside the institution's curriculum.
Leadership	Leadership is not only demonstrated by the teacher to their students; VbE also fosters self-leadership and leadership from the student outwards to live the values taught	Sustainability as an intrinsic value needs to come from within the student as well	Sustainable choices are made very explicit, clear, and easy to make in the classroom and around the school. Reward systems or friendly competitions may be used to encourage leadership	E1, E2: Facilitates active student engagement to practice the knowledge and skills learned in the classroom. Offers a channel for student-centred learning.
Ethical vocabulary	Students are taught what values are, and every opportunity is taken to explicitly talk about values (i.e., displays, activities, etc.)	Students are taught what sustainability means, the science of climate change, the impacts of unsustainable behaviour, etc.	Educators explain how different values contribute to sustainable development, and take every opportunity to discuss and mention sustainability-related topics in the classroom and relate sustainability across all subjects, lessons, projects and assignments	B1, B3, E1, E3, E4, E5: Fosters specific, deep and intersectional understandings of sustainability that traverses all subjects, while actively engaging students into a common language of values and sustainability.

* The atmosphere and ethos section is expanded in the VbESD framework to include a more separate operational context, for an eighth pillar of sustainable school operations.

The 'iceberg model' developed by Hall [58] illustrates the impact that VbE makes and that VbESD has the potential to make in a society. The iceberg model explains that at the surface, or visible, level of a society is its culture, shaped by the group's routines and structures. These routines and structures are formed based on mindsets, and the mindsets created from values. Figure 1 outlines the way in which VbESD facilitates the transformation of values into mindset and skills, behaviours and actions, and finally to a sustainable culture.
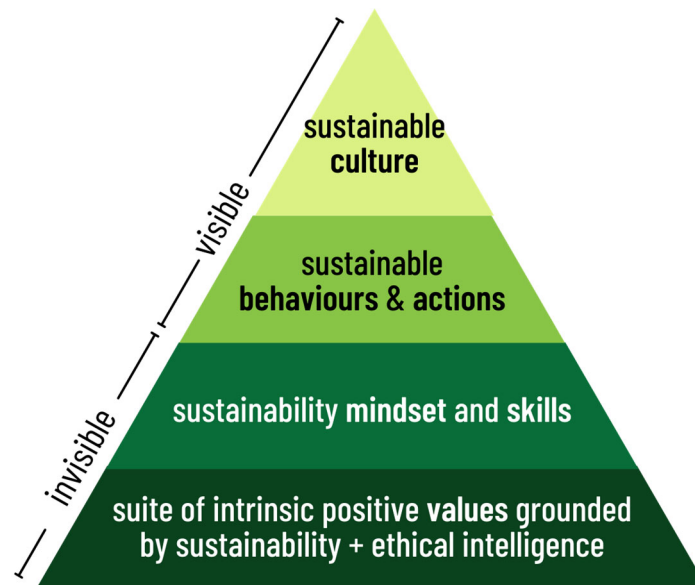
Figure 1. The VbESD 'iceberg model' showing its levels of impact.

Values-based education, whether VbE or VbESD, transforms the school and community's culture from the very base: its values. By nurturing positive values alongside sustainability as a value in children, VbESD will in turn sprout ethical mindsets, empowering routines and structures and ultimately, a culture of social transformation where people, animals, and nature can all flourish together [23,36,39,56]. On a more tangible scale, Values-based Education for Sustainable Development directly develops an individual's ethical intelligence and intertwines it with the value of sustainability. This combination is extremely powerful and lays the crucial foundation for sustainable development that is urgently needed.

3.2. The VbESD Blueprint

The first steps to implement VbE is outlined through the 'VbE blueprint' [59], a guide for schools to start the conversation and process of introducing Values-based Education into their school setting (see Figure 2). It outlines the process of implementing the VbE structure and development, which is summarized in a chart below:
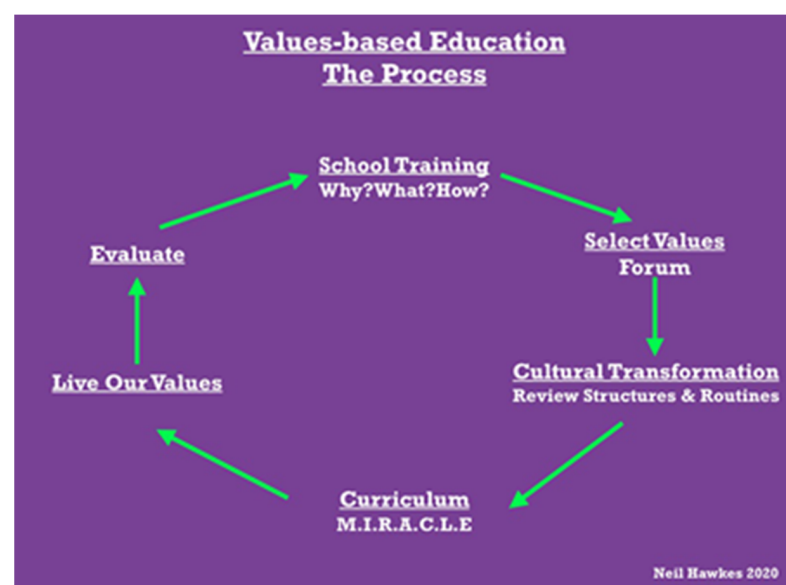

Figure 2. VbE's process of developing a values-based school [59].

The blueprint establishes the commitment and purpose of a VbE school, affirming that while it brings significant positive effects to all aspects of the school community, it is not a light or easy commitment. All staff in a VbE school need to be actively committed as well as willing and eager to learn and practice values-based living and teaching, as the success of VbE is directly connected to the integrity within the leadership of the school.

In this way, the VbE blueprint is highly applicable to VbESD as well. A main distinction between the VbESD blueprint and the VbE blueprint will be that in addition to asking each school and its stakeholders which values are most important and to focus on, there will be an additional step that asks how each value relates back to sustainability, and how that connection can be made explicit within their curriculum. It is only once all stakeholders and staff within a school are made clear on where sustainability connects their values and curriculum, can the school operate in a holistic, cohesive manner. This process is further described below. More details on how each value can be connected to sustainability is elaborated on within Section 3.3.7. on the 'ethical vocabulary' pillar.

Defining sustainability

Before anything else, a school that decides to practice VbESD must decide how they would like to define sustainability. This is encouraged as a co-creation exercise, where the school's staff, students, and other stakeholders such as parents come together. Seeing as the vagueness of what sustainability means and inconsistent definitions are common barriers to incorporating sustainability within the education system, it is important that the VbESD framework has a clear definition of sustainability. Therefore, to not compromise on either consistency nor each school's creative freedom, the VbESD framework encourages participating schools to have two definitions of sustainability: one as the formal, official definition, and one as to what that looks like within their school. The official definition may remain "meeting our own needs without compromising the ability of future generations to meet their own needs" from the Brundtland Commission in 1987 [49]. The school-specific definition can be established at the same time as the other definitions and values that are decided for the school, further explained below.

Underpinning sustainability within the school's chosen values

Once a school decides and commits to adopting the VbE model, they undergo a process of consultation with their stakeholders, including all their staff, parents, governors, and pupils, to decide each of their school's values. The most important values are shared and decided upon collectively, as well as how they are organized (i.e., one value per month, term, week, etc.). For example, one common approach is selecting 22 values, cycled through fully every two academic years with 1 value per month [59].

After choosing the school's values, the VbESD framework furthers the process by adding the step of relating each value back to sustainability. In the VbESD framework, all of the values selected are rooted in sustainability regardless of which ones they are and how many. The value of sustainability is then present within all the values, and it allows the school the freedom to choose whichever values are important to them, while maintaining the explicit goal and overall foundation of sustainability.

For example, a school chooses the value of respect as one of their values and defines it as showing courtesy and treating everyone with care and dignity. This value's understanding would then be explicitly expanded to relate to sustainability as well, in a way easily understood for children. For instance, they can decide that respect is important to sustainability because in order to care for and value the planet and its people, we must first have respect for all the plants, animals, and people that live here. Below are other examples of how other values can be related back to sustainability:

- *Love* is important for sustainability because it is from love that we care about each other and the planet;
- *Teamwork* is important for sustainability because by working together, we can solve the world's issues much faster and build stronger communities;

- *Happiness* is important for sustainability because happy people do good work, spread happiness and inspire others to pursue their well-being as well;
- *Honesty* is important for sustainability because in order to improve, we need to be honest about our actions, goals, and progress and willing to share ourselves;
- *Trust* is important for sustainability because we need to trust each other, trust businesses, trust leaders, to make decisions that will lead to a better world;
- *Kindness* is important for sustainability because kindness allows us to understand others, provide others with what they need, and to not harm others, including the environment;
- *Resilience* is important for sustainability because resilience is needed to overcome challenges and bounce back from societal issues such as poverty and hunger and natural disasters;
- *Hope* is important for sustainability because hope creates and keeps the vision for a better world alive.

With this added step when establishing the school's values, there can be a clear and explicit connection and reason for how each value connects and leads to sustainability. This provides a common language across educators, staff and students, greatly reducing barriers related to communication and setting the foundation for the ethical vocabulary pillar further described in Section 3.3.7.

3.3. VbESD Pillars

The pillars of VbESD are adopted from the seven pillars of VbE—modelling, Inner Curriculum, reflection, atmosphere and ethos, curriculum, leadership and ethical vocabulary—with an additional pillar of sustainable school operations, spelling out 'MIRACLES' instead of 'MIRACLE'. The eighth VbESD pillar fills a gap found in the original VbE pillars by distinguishing the more operational aspects of institutional sustainability from the more student-facing aspects (i.e., displays, bulletin boards, attitudes of staff, etc.) captured in the atmosphere and ethos pillar, such as the institution's infrastructure, procurement, internal policies and other elements that are not as conspicuous.

Together, the eight pillars of VbESD work in an integrative manner to foster intrinsic values amongst its students. It carries a holistic approach that stems from the roots of the school's operations, to influence all aspects of the educational environment. Just like the VbE framework, the VbESD framework calls for a high level of commitment from the school's leadership to transform the school's culture. Implementing VbESD is, challengingly, not a short-term or low-engagement endeavour; it takes all the staff at the school to commit to the cultural transformation and to sustain it long-term and consistently. However, with intrinsic motivation, a clear structure, as well as quality resources, support, and training, implementing VbESD will be a highly rewarding challenge where its deep benefits and increase in the school's performance, social well-being, and harmony will prove a significantly positive return on investment in all aspects, and the process unwaveringly worthwhile.

Figure 3 illustrates the concept of VbE as well as its 8 pillars. Below are descriptions of how each pillar can look like for a primary school practicing VbESD, relating VbE to ESD for a sustainable world.
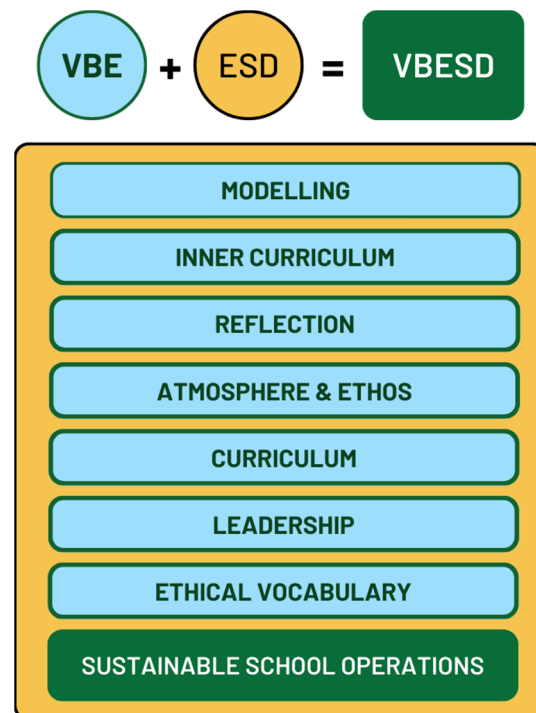
Figure 3. The concept and eight pillars of the VbESD framework.

3.3.1. Pillar 1: Modelling

Modelling refers to the modelling of behaviours that the staff and students display, which leads each value by example [60]. Schools practicing VbESD will not only model the values they choose within a VbE framework, but will all have the additional value of sustainability that grounds all of the other values. This means that all staff within a VbESD school model sustainable behaviours and relate their actions back to sustainability, thus also including sustainability-related language in their day-to-day conversations.

Examples of modelling sustainable behaviour:

- Properly sorting waste, such as recycling any recyclable materials;
- Reducing waste when possible, such as modelling the reuse of good-on-one-side paper, bringing litterless lunches, and using reusable bags, bottles, containers, utensils, etc., instead of disposable items;
- Using resources efficiently, such as turning lights and monitors off, as well as responsibly using the classroom sink and other classroom materials;
- Treating nature with respect when outdoors, such as not breaking tree branches, picking flowers and/or leaves, or disrupting wildlife, and using dedicated walking paths;
- Treating nature with respect when indoors, such as repositioning spiders and insects instead of killing them, and taking care of indoor plants;
- Conscious choice of classroom materials, such as eco-friendly stationery items (i.e., 100% recycled post-it notes, post-consumer recycled paper, etc.).

It is important to note that the added modelling of sustainability in this pillar within VbESD does not mean that staff are expected to lead a perfect example of sustainable behaviours; it is simply bringing more explicit attention to achievable and feasible behaviours when possible.

This pillar works very much hand-in-hand with other pillars, such as ethical vocabulary and sustainable school operations, which will be described in more detail below.

3.3.2. Pillar 2: Inner Curriculum

The Inner Curriculum pillar focuses on honing self-awareness, self-understanding, and self-regulation, and is entirely unique to the VbE model. The VbE philosophy states that when individuals can control our inner world, they learn how to better navigate the outer world, as internal peace radiates outward. Values-based Education operates with the belief that at the core of every individual is an authentic, inner essence, which is not bogged down or locked by negative and limiting experiences. Values-based educators use activities to attune their students to their internal world and the opportunity to explore within and give that attention to themselves instead of their outside environment. When values-based educators connect with and relate to their pupils, they relate from heart to heart, instead of what's on the external front. As explained by Values-based Education, the Inner Curriculum integrates the profound insights found in education, interpersonal neuroscience, psychotherapy, and the wisdom of humanity to develop students' control over their thoughts, feelings, and emotions and ultimately, their self-leadership [61,62].

In a similar way, the VbESD framework draws on this Inner Curriculum to cut through the main barriers of sustainability such as convenience, instant gratification, materialism, and excessive consumption by relating straight to the deeper levels of an individual and attuning to their core desires. Students are able to effectively regulate their impulses towards convenience and instant gratification, as they understand the impacts of their behaviour and how their actions' ripple effects are bigger than themselves. Indeed, just as the VbE Inner Curriculum leads to the flourishing of humanity, the VbESD Inner Curriculum leads to the flourishing of both humanity and the environment.

Examples of the Inner Curriculum in practice within a classroom:

- Educators know how to respond to students' behaviours, including challenging ones, with compassion and in an emotionally-regulated manner;
- Educators can uncover the deeper meanings behind students' behaviours and respond to their deeper needs (i.e., to belong) instead of reacting to the surface behaviour (i.e., fighting);
- Educators relate to students from a place of authenticity, fostering attunement through deep listening and empathy instead of from a place of superiority to create harmonious relationships;
- Educators take time to conduct activities with students to foster self-regulation strategies, such as practicing breathing exercises;
- Students learn and practice how to understand and attune to their true selves, including how to regulate their emotions when overwhelmed through strategies such as pausing.

3.3.3. Pillar 3: Reflection

This pillar of the VbESD framework takes the existing pillar of reflection from the VbE model and imbeds the value of sustainability within it, by connecting the reflections and visualizations to sustainability. This is achieved by adding in prompts and visualizations for how each value relates back to a more sustainable, peaceful, better world. During reflection time, students have the opportunity to not simply be guided through visualizing the value at hand and being present to their thoughts, but also guided through how that value shows itself as a crucial element to a better world. The students are then invited to imagine a world where that value is abundant, and where they and the people and community around them are all practicing that value. They can be led to imagine such a world, and with that, foster their self-motivation as well as the optimistic thinking and action that lies at the core of the reflection pillar.

An example of incorporating sustainability into reflection time

Within the online videos that are presented on the Values-based Education website, the third online training video is on 'reflection', where VbE's CEO Bridget Knight explains her "painting with words" methodology for values-based visualizations. In her training, she

walks through a script for a guided reflection on the value of courage [63,64]. Sustainability can easily be incorporated within that reflection by relating how courage is needed for a sustainable world and sustainable behaviours. There are infinite possibilities for how this can look like, but some questions that educators can ask themselves to develop a script can include the following: How does living this value make the world a better place? How can living this value promote environmental, social, or economic sustainability? How can living this value advance the Sustainable Development Goals? Why does our society need this value to flourish and thrive? How can this value benefit the student, as well as on a bigger scale—to their family, the classroom, their community, the world? How would they have shown this value recently?

Once these questions are explored, their answers can help develop a few phrases to add into the guided reflection and visualization. Below is an example of phrases that can be included:

> "Reflect back to when you felt courageous. It could have been when you shared what you were grateful for this morning. It could have been you raising your hand in class, and sharing your thoughts. Now, grasping the light of courage in your hands, feel it rush into your heart, your soul, all within you. And imagine everything you can do with all that courage. The world needs courage to thrive and flourish. It is with courage that people follow their dreams and put in the effort to turn their ideas into reality. It is with courage that new technologies are invented and with courage that people speak up about issues in the world. It is with courage that people stand up for nature, for the environment, and ask the world to pay attention to protecting our Earth. It is with courage that people stand up for what's right, and for their friends in trouble, and for telling the truth when situations are hard. Imagine how the world would look if people had more courage."

The VbESD framework will also outline a 'series of gratitude' each day, for example each morning. This set of activities may take around 5 min, and has three components within it that work in synergy.

(1) Gratitude Circle: The first component is the 'gratitude circle' where the students gather in a circle to start (or end, or take a break within) the day, and the teacher takes a minute to go around to the students asking what they are grateful for that day. The students will be invited to provide two things they are grateful for, with one of them being an element from nature (i.e., grateful for the sunshine today; for the clear skies; for the warm breeze, etc.). The teacher is expected to create a safe, inviting space for the students to share, and appreciate each answer. This sharing is structured to be a few minutes long. At first, students may take a while to think about what they are grateful for. However, once this becomes a regular, daily practice, students will more actively and purposefully think about things they are grateful for in the morning, or on their way to school, and come prepared for the circle. After honing this practice, this sharing would take 2–3 min.

(2) Daily Reminder: After the sharing comes the second component, the reading of a 'daily reminder'. At the start of each month (or with each change in the value), the teacher works with their students to come up with a paragraph together that relates gratitude, the value at hand, and sustainability together. The structure of this reminder can look like this:

> "Today, we are grateful. We are grateful for (noun), for (noun), and for (noun), which nature provides us so generously with. We are grateful to be living on this beautiful home, our Earth, and we thank the (name(s) of the first nations or indigenous people if applicable/our ancestors) for taking care of this land for us. We know the importance of the responsibility we have in keeping this home beautiful and abundant in (noun), (noun), and (noun) for all the future children in this world. Our Value of the Month (value) means (phrase) and living with this value will bring sustainability to the world because/by (phrase)."

The brackets are words and phrases that the teacher and students come up with together. This paragraph will then become a script that will be put up in the classroom, as well as expressed at the start of each day. There could be various ways that this script can be expressed, and a few examples include where the teacher reads to the students, where the teacher invites any willing students to read together with them, where the students read collectively without the teacher, or as a 'prize' where a student is awarded the honour of reading it to the class. Creativity can be applied to this component with ease and is greatly welcomed. This component explicitly links sustainability with the value, and gratitude for nature which is key for fostering sustainability as a value. Expressing this daily reminder would take about a minute.

(3) Moment of Gratitude: The two previous components lead up to this final component, where the students are invited to take one minute to be grateful and think about what they are grateful for. This component is best at the end, because the students would have received prompts from their peers as well as the daily reminder, and have the connection between the value and sustainability fresh in their minds. At the end of the minute, the students can be given another minute if the teacher wishes, to write their gratitudes or thoughts down in their reflection journal. With this component taking about 2 min, the entire series of gratitude would take about 5 min structured at the beginning of each day.

3.3.4. Pillar 4: Atmosphere and Ethos

A school's atmosphere is what surrounds each learner both inside and outside the classroom [60]. It permeates the entire school, and any and all visitors can feel it as soon as they step inside. With globalization and rapid modernization, many educational settings nowadays have an atmosphere that is focused on achieving high grades and results, reflecting an increasing demand and culture for the value of academic success. However, values-based schools focus on bringing a deep positive difference to the student's worldview that underpins their thoughts and decisions. A school's atmosphere is determined by any structures and systems put in place, for example, reward systems, friendly competitions, community projects and activities, and school-wide campaigns. A VbESD school atmosphere would have the same welcoming, friendly, and positive environment as a VbE school, but also one where there is a focus on learning from and living in harmony with nature. Clear nature elements and displays with an explicit focus on sustainability would be present, such as signage, stickers, boards, plants, and green spaces.

The atmosphere and ethos pillar also works in cohesion with Pillar 8 of 'sustainable school operations' (see Section 3.3.8), and there are overlapping features. It should be recognized that it is the more visible elements of Pillar 8 that encompass the atmosphere within a school, and that the goal with this pillar is to explicitly inspire passers-by and anyone within the school environment with the school's active action on sustainability.

Examples of elements in schools creating an atmosphere and ethos rooted in sustainability:

- Living walls and classroom plants;
- School gardens (i.e., a values garden would perfectly connect VbESD elements to VbE); outdoor time and outdoor education;
- Boards and displays that explicitly mention sustainability-related topics; stickers on resource-using locations (i.e., electrical outlets, light switches, taps, toilet flushers, computer monitors, etc.);
- Signage related to sustainability (i.e., waste sorting signage); green space and natural architecture (i.e., nature playgrounds);
- Books about sustainability concepts within classrooms and the school library.

Displays also play a key role in reinforcing students' ethical vocabulary (see Section 3.3.7), where sustainability is not only embedded within the language used in class, but also within visual displays all around the classroom and school. In most VbE schools, there are displays of values in the halls and in each classroom, ranging from bulletin boards, murals, values baskets, values boxes, values-based characters, posters, and

signs. In schools practicing VbESD, displays can showcase the foundational or overarching nature of sustainability connecting all the other values. For example, if there was a display of a values tree with leaves symbolizing the values, sustainability could be added at the root or trunk of the tree. Displays offer a safe and regular space for creativity to be brought into the narrative, another important element to foster for sustainable development and innovation.

3.3.5. Pillar 5: Curriculum

Seeing as each school already has this component, this pillar within VbESD is not designed to replace but rather add onto and ground any school's existing curriculum. In the VbE framework, though, the curriculum is not only focused on numeracy and literacy, and memorizing facts and figures—values sit at the core of it, and transcend the formal, informal, and hidden or implicit layers of the curriculum where they are taught not only implicitly but explicitly [60,65]. The VbESD curriculum includes everything that the VbE curriculum comprises, but it also adds on explicit lesson planning for raising awareness, knowledge, and skills about sustainable development. In a VbESD curriculum, anything that can be related to sustainability without compromising other teachings is carried out. This pillar is also where the 'knowledge and skills' within Education for Sustainable Development are fostered—the knowledge and skills required to become a responsible, engaged, global citizen and leader. The VbESD framework outlines a curriculum that will explain the science and definition of sustainability while addressing the issues, solutions, root causes, and intersectionality of climate change and unsustainable development, in order to foster the core competencies within Education for Sustainable Development. It will incorporate elements to engage student-led learning, project-based learning, experiential learning, partnerships with local and global organizations and stakeholders, and imbed the understanding that sustainable development and climate action have a highly interdisciplinary nature.

For this pillar, learning outcomes will be guided by the UNESCO "Learning for the future: Competencies in Education for Sustainable Development" [3], as well as curriculum guidelines from ESE approaches, including EE, EfS, and outdoor education [37].

Examples of topics covered within VbESD:

- Definition(s) and types of sustainability;
- Importance of sustainability;
- Science behind climate change;
- Effects and impacts of climate change;
- Solutions to climate change;
- Intersectionalities of the above.

Examples of integrating the value of sustainability in curriculum across different subjects:

- In Language class, choosing reading materials that relate to sustainability and sustainable development instead of arbitrary ones, to illustrate the same concepts (i.e., poetry, literary devices, storytelling, character development, character tropes, etc.);
- In History class, incorporating learning of historical sustainability events (i.e., the Kyoto Protocol, Paris Agreement, creation of the Millennium Development Goals (MDGs) and SDGs, etc.), including ones local to the school and/or community;
- In Science class, including teachings about climate change (i.e., greenhouse gases, pollution, and sustainable innovations (i.e., circular economy, carbon capture, social enterprises, etc.);
- In Drama class, incorporating sustainability as a theme during class activities or projects (i.e., instead of entire free rein, encourage students to create pieces around a sustainability topic or narrative);
- In Physical Education class, increasing elements of outdoor learning (i.e., nature walks and/or hikes, etc.);

- In Social Studies class, incorporating field trips to local environmental/social justice organizations and/or social enterprises where students can learn about their work, be exposed to sustainability work in real-life, and get inspired;
- In Art class, using nature and landscapes as examples (i.e., to paint/sketch/etc.) instead of inanimate objects;
- In Math class, incorporating sustainability elements in example and practice questions/problems (i.e., using '3 bees' instead of '3 pencils' as a simple example).

3.3.6. Pillar 6: Leadership

Leadership within VbESD is crucial and refers to leadership of all kinds. First and foremost is the leadership of the school staff, all the way from the top administration and management of the school to its office administrators, teachers, support staff, and even janitorial staff [60]. Only with full staff onboarding of the VbESD model can a school realize its full transformational potential and offer a holistic leadership for values-based living.

However, leadership does not only encompass teacher leadership that influences their students in values-based educational settings: leadership starts from the student themself and extends to multiple levels beyond their individual actions. Firstly, values-based education fosters self-leadership to live the values they learn, supported by all the other pillars. Next, students display leadership to encourage and keep their classmates and peers accountable within the values-based school environment. From there, students bring their leadership to their family when they share about the values and learnings at home. Even greater than that leadership is when students become leaders within their community by modelling their values in their extracurricular lives. As they grow older, a global leadership emerges once they become engaged global citizens. Everyone who is within the student's environment is part of a ripple effect that is deeply transformative. Leadership within VbESD encompasses everything within VbE, with an added leadership pertaining to sustainable behaviours and lifestyles. Indeed, VbESD cultivates leadership that is much needed in the rapidly-developing world that we are living in, one that is compassionate, courageous, gentle, resilient, and insightful.

On an even bigger level, VbESD schools themselves act as leaders to demonstrate to other schools and education systems that such education is possible and provide replicable methodology for other interested schools to follow.

Examples of sustainability leadership cultivated within students through VbESD:

- Integrating sustainable practices in their own life (i.e., turning the light off when the last to leave the classroom, turning the monitor off when finished with the computer, putting their juice box into the recycling bin while putting the straw in the garbage, etc.);
- Encouraging their classmates and peers to practice sustainable behaviours (i.e., reminding their friends to stay on the dedicated walking path, showing their friends their new reusable water bottle, etc.);
- Starting conversations at the dinner table at home to engage family members in what they learned (i.e., sharing about circular economy examples, sharing stories from a nature walk, asking them to pack a litterless lunch the next day, etc.);
- Starting and/or supporting school initiatives and/or community projects (i.e., tree planting, donation drives, clothing swaps, etc.) that contribute to sustainability and sustainable development;
- Joining school environmental clubs and/or campaigns by environmental organizations.

3.3.7. Pillar 7: Ethical Vocabulary

The ethical vocabulary grounds Values-based Education by providing its students with a common language that expresses their understanding of the values, and the tool to communicate their thoughts and reasonings from that shared understanding [60,66].

In a VbESD school, this ethical vocabulary is expanded from the values in VbE, to incorporate language that relates to sustainability as well. In addition to understanding what values such as courage, hope, love, joy, respect, and kindness mean, students are also raised in the environment to understand what sustainability means, in all its aspects. They will understand not only the terms of sustainability and sustainable development— including its pillars of environmental, economic, and social sustainability and concepts such as climate change, global warming, recycling, clean energy, environmental degradation, biodiversity, ecosystem, social well-being, eco-friendly, overconsumption, waste, resource usage, stewardship, pollution, conservation, and preservation—but also how values are connected with sustainable development.

However, the essence of the ethical vocabulary pillar is that students not only know the vocabulary, they fully understand and experience the vocabulary as well. In order to understand and experience the values taught in a values-based school, there needs to be a significant amount of intention behind selecting and planning for each value. This values-selection activity was outlined in Section 3.2, followed by the school-specific discussion to create their own definition of sustainability (which can exist alongside the official one). It is important to keep in mind that the school-specific definition should be easy to understand, even for children. An example of this could be the following:

> "To behave sustainably means to behave in ways that meet our own needs without compromising the ability of future generations to meet their own needs either. At (name of school), this means to make sure that we take care of our home, including the people, animals and nature, so that they all thrive even when we're old."

Application example of a school-specific definition of sustainability

The ethical vocabulary, including the school-specific definition of sustainability, is something that VbESD schools would make very visible and part of staff and students' everyday communications. For example, they can be integrated into the daily morning announcements (i.e., at the end), which could sound like this:

> "Remember everyone: at (name of school), we are change-makers and change-leaders and do our best to build a better world. For us, this means to make sure that we take care of our home, including the people, animals and nature, so that they all thrive even when we're old. This month's value is Teamwork. Teamwork is important to build a better world because by working together, we can solve the world's issues much faster and become stronger communities."

Explicit connection to sustainability in everyday language

As outlined in Section 3.2 with examples, each of the school's chosen values are clearly and explicitly connected back to sustainability. Just like how in VbE schools every opportunity is taken to explicitly talk about each value, teachers in VbESD schools would take every opportunity to not only talk about each value but relate it back to why it is important for sustainability as well. Some examples are provided in Table 3, but there are unlimited opportunities to bring sustainability and values into the discussion.

With regular, consistent mentions of values in addition to the intentional act of relating them back to their importance and sustainability, teachers are able to create an environment where the students are surrounded by the values and where sustainable development is embedded within the core of their learning and common vocabulary.

Table 3. Examples of incorporating sustainability explicitly into an educator's daily language.

Non-VbE Educator	VbE Educator	VbESD Educator
"Please recycle, class!"	"Please recycle, class!"	"Recycling these papers shows responsibility and is important because it lets us use the same paper to make new pieces of paper, instead of cutting down more trees and causing harm to the environment"
"And what did Snow White do?"	"What values did Snow White display here?"	"What values did Snow White display here? How did that help her? What might you be able to do better if you had [insert value]?
"Let's have a short break, class."	"Let's have a short break, class. Use this time to regain some peace and calm."	"Let's have a short break, class. Use this time to regain some peace and calm. Let's also take this break to refill your water bottles! Using reusable bottles is great because we can use them again and again, without needing to create plastic waste."
"Don't step on the grass!"	"Thank you for showing care around the grass."	"Thank you for showing kindness to the earth by being careful around the grass. Kindness is such an important value to have because that is how we will make sure that we treat both other people and our planet well, and leave it in good condition for our future generations."
"You did so well today!	"You showed a lot of courage today!"	"You showed a lot of courage today! That courage is so valuable because when you grow up and need to make harder decisions, you will be drawing on that courage. If you have a great idea for the world, you will need a lot of courage to make it come true."
"I loved the story that you wrote! You have a great imagination."	"I loved the story that you wrote! There is so much hope filled inside."	"I see a lot of hope in this story you wrote. This hope is what will create our brighter future, and let us see the potential for the world, where people are happy and the planet is healthy."

3.3.8. Pillar 8: Sustainable School Operations

This last pillar is a new pillar that provides the final distinction between a VbESD school and a VbE school. Sustainable school operations consist of everything that happens at an institutional level, primarily operational infrastructural elements that are less student-facing. It entails the 'behind-the-scenes' activities that create the deeper foundation for the atmosphere and ethos pillar and the underlying culture of sustainability. While these items are often in the periphery of a school's visible elements, such school operations do not need to be inherently invisible. Precisely, the key to generate impact from this pillar is explicit and effective communication for these otherwise-less-visible elements.

Examples of sustainable school operations:

- Having sustainable choices within the school's foodservice, such as plant-based meals, nutritious breakfast and snack programs, and sustainable cafeteria practices (i.e., practices to reduce food waste, procurement of local and/or organic food);
- Having infrastructure that supports the efficient use of resources (i.e., low-flow toilets and faucets, LED lighting, ENERGY STAR appliances, computers on energy saver mode, etc.);
- Installing intentional green space (i.e., living walls, rooftop or school/community gardens, etc.) and building/interior design that maximizes natural light;
- Using products that are environmentally-friendly (i.e., non-toxic cleaning chemicals, soaps without microbeads, post-consumer recycled paper napkins and toilet paper, etc.);
- Choosing local procurement when possible to support local and/or small businesses (i.e., catering options, contracts for services, etc.);

- Designing hiring and recruitment practices that consider applicants' values, attitudes, knowledge, and skills on sustainability;
- Investing in professional development and training about sustainability and ESD;
- Setting school-wide structures to recognize sustainability leadership (i.e., awards, rewards system, etc.);
- Establishing a sustainability committee and/or working group(s);
- Incorporating sustainability topics into discussion items and agendas at school and/or parent council meetings;
- Creating official communication channels any/all of the above (i.e., educational signage about low-flow toilets and recycled paper napkins, showcasing a paragraph or page about institutional sustainability on the school website, sharing sustainable initiatives on the school's social media, etc.).

While in a sense, these structures can be considered 'modelling' on a school level, a separate category for them is more reasonable because they are usually not decisions that teachers can make themselves, unlike modelling and the curriculum. Of course, developing this pillar also takes more than simply staff behaviour—it also needs financial resources and time as well. Guidelines will be provided for these sustainable school operations to serve as ideal goals, and VbESD schools would simply try their best and implement whatever is feasible and possible alongside a reasonable time frame. The ultimate goal in this pillar is to have such embedded institutional sustainability that it will be the clear and easy choice all around.

3.4. Differentiation of VbESD from Other Sustainability Education Approaches

VbESD presents a unique approach to sustainability education that not only involves students and teachers, but the entire school—from its principal to its janitors—and beyond. It encompasses student–teacher relationships, psychological development, the school's visual environment and infrastructure, operations and policies, and a concerted, intentional effort across the school to deliver transformational education that fosters resilient, ethically intelligent leaders of tomorrow.

VbESD integrates sustainability into each and every subject and activity, and daily conversations, instead of specific courses and discussions. The framework has a holistic affective approach combining teachings from neuroscience and psychotherapy, rather than a cognitive approach focused on teaching knowledge. VbESD expands the learning scope and opportunities to not only those obtained through diverse human and non-human relationships (i.e., teacher–student, student–student, student–self, student–community, student–nature, etc.) but also through infrastructure and atmosphere (i.e., displays, signage, posters, murals, etc.), as well as operations and processes (i.e., foodservice operations, procurement policies, etc.).

4. Methodology

As presented in the introduction, the central research aim is to investigate whether and how a pedagogical framework could be created to foster sustainability as an intrinsic value to advance Education for Sustainable Development. This research goal is explored through a deductive–inductive approach, where existing evidence, theory, research, and practice is combined with new theory and investigation into a possible new framework. In the deductive phase, current practices and limitations of sustainability education and ESD, as well as their pedagogical approaches, are critically analysed to understand the context thoroughly. Identified best-practices as well as insights gathered from discussions with VbE staff and two in-depth surveys are then used in the mixed-methods inductive phase to develop and build the Values-based Education for Sustainable Development (VbESD) framework and thus demonstrate the opportunity to use the principles within VbE in ESD.

4.1. Building the VbESD Concept and Framework

To lay the groundwork for the VbESD concept, parallels between VbE and ESD were mapped out. Subsequently, each of the seven VbE pillars were analysed and extended into an ESD context to build the foundations of the VbESD framework, focusing on providing concrete examples with the goal of being easily implementable, tangible, and impactful.

To ensure the alignment of VbE during the development of the VbESD framework, multiple conversations were also had with Nigel Cohen, Strategic Director at Values-based Education and International Values-based Education Trust trustee, over email correspondences and a live virtual discussion. The correspondences were aimed to introduce an awareness of VbESD at VbE for the potential of mutual collaboration, as well as to ensure an accurate understanding of VbE while developing VbESD. During the conversations, key distinctions were made in terms of what the primary principles of VbE are, how VbE and sustainability relate, and the difference between values education and values-based education for sustainability [26]. These conversations have helped to bring insight and groundwork to this framework and serve as the basis for further consultation.

4.2. Development of the Survey to Establish Values-Based Education for Sustainable Development (SEVbESD) and the Survey to Implement Values-Based Education for Sustainable Development (SIVbESD)

4.2.1. Objectives of the SEVbESD and SIVbESD

Two surveys were developed to support the conception of VbESD: the survey to establish Values-based Education for Sustainable Development (SEVbESD) and the survey to implement Values-based Education for Sustainable Development (SIVbESD).

The SEVbESD aims to consult the general public as well as various stakeholders (i.e., educators and curriculum designers, VbE staff, and affiliates) in order to establish a baseline understanding of how much interest, support, and willingness there would be in establishing a framework for sustainability education such as VbESD, what perceived barriers are present, and obtain feedback for important elements to include in the framework. The primary questions of the SEVbESD are as follows:

- Is there interest in a framework fostering sustainability as an intrinsic value within the education system?
- Is there support for introducing VbESD on the global, country, and local levels?
- Is there willingness from educators to implement VbESD within their own teaching and within their own school?
- Do VbE practitioners believe that VbESD is feasible on a conceptual level?
- Is there a perceived sense of importance in sustainability education?
- What are the most commonly-perceived barriers to implement the VbESD framework, and what are some possible solutions?
- Has values education for sustainability education been historically impactful, and if not, why not?
- What level(s) of education is most perceived as the critical window to implement sustainability education/the VbESD framework?
- What are the primary elements to focus on in the case of them needing prioritization?

The SIVbESD is a follow-on survey to the SEVbESD. It aims to understand the feasibility of implementing and the willingness to implement VbESD into existing educational systems, as well as any additional feedback for improving the working model. Additional investigations that the SIVbESD would explore are whether there is any increase or decrease in the support for VbESD after having seen the framework itself, the main barriers for implementation from educators having seen the framework, and whether there are any trends between an individual's willingness to adopt the framework and their past experiences.

4.2.2. Survey Target Audiences and Dissemination

The SEVbESD and SIVbESD were online questionnaires consisting of 57 questions across 7 sections and 49 questions across 6 sections, respectively, and shared to the general public with an emphasis on educators, curriculum designers, and individuals in the VbE community through word of mouth and various online and social platforms. They consisted of various types of questions, including multiple choice, checklists, 11-point Likert scales, and short-answer and long-answer questions. Unique to the SIVbESD is its request for an additional level of engagement and commitment from its participants to obtain an understanding of the VbESD framework first. Three options are provided to generate this understanding: a set of presentation slides for participants to read through, a written document of the framework, as well as an invitation to attend a live 30-min presentation of the framework with a questions period following the presentation. After the participant has received a general understanding of the framework, they are asked a series of questions pertaining to its feasibility.

Both surveys were delivered publicly, with a special focus on core communities highly relevant to the research: the VbE and International Values-based Education Trust (IVET) Foundation community (including VbE board members, VbE practitioners and educators, any staff at VbE schools, VbE Affiliates, IVET Affiliates), as well as primary school educators and staff. Nonetheless, data from any educator or staff in a learning institution would also be valuable, as well as the general public, in order to have a diversity of audiences and identify any differences in perception between them. The surveys were estimated to take 20–30 min to complete, and because the sampled population is the general public, the sample size needed for a 95% confidence level and a 10% margin of error was 97 people, which was set as the minimum target.

$$n = N \times X/(X + N - 1), \tag{1}$$

where $X = (Z\alpha/2)2 \times p \times (1 - p)/MOE2$, and $Z\alpha/2$ is the Z-score of the normal distribution at $\alpha/2$, MOE is the margin of error, p is the sample proportion, and N is the population size. For a confidence level of 95%, α is 0.05 and the Z-score is 1.96.

4.2.3. Survey Target Audiences and Dissemination

Exploratory data analysis of both ordinal data and natural language data was performed. Proportions and percentages of different responses to each question were analysed and if relevant, related back to demographics or previous experience and/or education. Themes related to primary questions were investigated in a more detailed manner, with responses from subpopulations analysed in relation to other subpopulations. For short- and long-answer responses, key words were identified and analysed thematically. Common themes and phrases were observed for their degree of support as well. Each suggestion not already taken into account in the VbESD framework was considered and noted for the next steps of VbESD's development, either immediate or longer term.

4.2.4. Survey Design and Outlines

Outline of the SEVbESD: The SEVbESD first starts off with a section on establishing the demographic of the surveyee. Questions are used to establish age, gender, and ethnic background as the basic demographics surveyed. Demographics related to their educational background are also gathered. Next, there are questions to gather a general idea of their knowledge on sustainability and how much the participant values it (i.e., in their lifestyle, behaviours, or as a value), as well as how they would rate its importance within the education system on different levels. The survey asks what the surveyee believes are the best ways to incorporate sustainability within the education system and provides choices of mandatory or elective courses, course-specific or integrated within different courses, as well as the choice for a full integration at the foundation, across all courses and operations. Section 3 focuses on establishing the connection between values-based education and

sustainable development, with questions similar yet distinct depending on whether the surveyee is involved within VbE. Both audiences receive questions around whether the surveyee believes sustainability can be fostered as an intrinsic value and in the education system, and if that would be valuable. The wording, however, is more general for non-VbE practitioners. The next section starts with questions about the respondent's previous experience with both values education and sustainability education, exploring at which education level they received it, how they received it, and the impact it had on their life. The survey then explains the concept of VbESD and asks the surveyee to rate their support for and willingness to adopt the framework. The last question in this Section 4 asks whether or not the surveyee is an educator of any kind, and leads to the next section on support for and perceived barriers to VbESD. For educators, Section 5 asks whether they already incorporate sustainability into their teachings, and whether they support introducing the VbESD framework on a general and individual scale, followed by a checkbox question on what barriers they perceive for VbESD implementation on both levels, as well as space to elaborate regarding their solutions. Non-educators are only asked one set of these questions, for the general education system. Section 6 relates to identifying important elements and aspects to VbESD, where different pedagogical approaches, curriculum elements, and other aspects (i.e., student-led learning, experiential learning, the science of climate change, staff being positive role models, the impacts and solutions and root causes of unsustainable behaviours, support from higher-ups, etc.) are presented for the surveyee to rate for their importance to the VbESD framework. Surveyees are also prompted to provide additional feedback for barriers not mentioned. Then, the surveyee is asked whether they would have liked their primary education to have implemented VbESD, and what level of education they believe that VbESD would be most important to be implemented. The last section (Section 7) of the SEVbESD focuses on the next steps, asking the surveyee how they would like to continue this discussion, any additional comments, and to leave a space for them to provide any connections to the VbESD and feedback for the survey. The full SEVbESD preamble and questions can be found in the Supplementary Materials.

Outline of the SIVbESD: Similar to the SEVbESD, the SIVbESD first starts off with a section on establishing the demographic of the surveyee. Questions are used to establish age, gender, and ethnic background as the basic demographics surveyed. Then, demographics related to their educational background are also gathered. The participant is then asked to provide feedback on the VbESD presentation if they attended. Before the next section, the participant is asked to read through the VbESD framework provided if they had not attended the presentation, so that they are familiar with the framework first. They are then asked to rate their support for the VbESD framework, its importance, urgency, and feasibility on different scales (i.e., global, country-level, local), and their willingness to adopt the framework (hypothetical if they are not an educator) now that they have actually seen it. They are also asked to rate its effectiveness and impact for the students and whether they would have wished their primary school had such a framework. The next section is presented to educators and concerns the barriers to implementing VbESD; the same barriers are presented as in the SEVbESD, but this time in the context of after the participant understands the framework. Educators are prompted about potential solutions of the barriers as well. Participants are then asked questions pertaining to their perception of the VbESD framework and how much they believe VbESD can foster sustainability as an intrinsic value. Penultimately, participants are asked to rate the importance and impact of each pillar as well as provide any other elements that were not covered. They are then asked to rank the importance of VbESD to each education level, the same as asked in the SEVbESD. Lastly, participants are asked about follow-up conversations and products regarding VbESD. The full SIVbESD preamble and questions can be found in the Supplementary Materials.

5. Results from the Surveys to Establish and Implement VbESD

5.1. Results from the SEVbESD

The following section describes the results from the survey to establish Values-based Education for Sustainable Development. A total of 129 individuals participated with results from 128 participants described below, as one of them did not consent for their answers to be used.

5.1.1. Section 1: Demographics

The demographics of the SEVbESD participants cover a wide range of age, ethnicity, educational background, and career field. Out of 128 participants, the majority (69 people; 53.9%) were between 18 and 25 years old; there were 42 participants (32.8%) aged 25–40; 11 (8.59%) that were 40–65 years old, 4 (3.13%) above 65 years old, and 2 participants (1.56%) between 13 and 18 years old. No participants were 1–12 years old.

Most participants (96 of them; 75.0%) identified as female, and 28 (21.8%) as male. Other populations represented included transgender, queer, non-binary, and gender-fluid, totalling 4 participants (3.13%). The majority, 68 participants (53.1%), were white or Caucasian followed by East Asian and South Asian individuals, together comprising 37 participants (28.9%). In total, 11 of the 128 respondents (8.6%) grew up in Italy. Other communities represented included Southeast Asian, MENA, Indigenous, Black, West Indian, Hispanic, and Southeastern European.

Most participants grew up and obtained their most relevant education in Canada (70.9% and 75.0%, respectively), although participants also came from all other continents (Asia, North and South America, Australia and Oceania, Europe) as well. The school boards represented included ones across Canada and internationally, with the most represented (34 participants; 33.7%) being the Toronto District School Board.

The two majority populations surveyed were students (58 participants; 45.3%) and general community members (46 participants; 35.9%), although careers fields varied from logistics, community development, administration, e-commerce, social work, non-profit, programming, technology, law, real estate, agriculture, healthcare, advertising, and many more. Educators comprised 41 participants (32.5%) and ranged between primary, middle, secondary, and post-secondary educators, as well as outdoor educator, community educator, and educators within educational non-profit organizations. Fields of study ranged from environmental sciences to business, architecture to law, and various others.

5.1.2. Section 2: Sustainability as a Value

As seen in Figure 4, 100% of the participants valued sustainability at a 6 or more in the 11-point Likert scale, with 39.8% responding with a 10. In terms of knowledge and behaviour around sustainability, the distribution was similar to a normal distribution between 3 and 10 scores with 7 as the mode, with 29.7% and 28.9% of respondents answering 7, respectively. In terms of the importance of sustainability as an intrinsic value (i.e., guide their thinking and behaviour), 100% of the respondents answered between 5 and 10, with a 40.6% majority at 10.

A similar and more extreme observation was found in the importance of incorporating sustainability into the education system, with 64.1% and 67.5% of respondents scoring 10 (extremely important) for globally and locally, respectively. As for incorporating education for sustainability into the participants' fields of work and the education system, all participants still responded with a 5 or more, and 'extremely interested' was selected by 55.4% and 56.3% of participants for their field of study/work and into the education system, respectively (Figure 5).
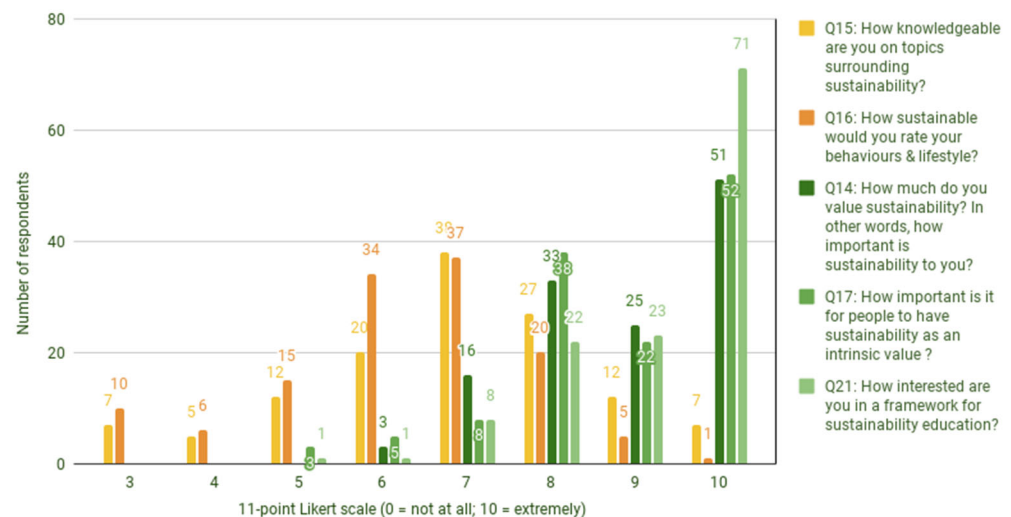
Figure 4. Participants' knowledge, lifestyle, value, and interest for sustainability (results from SEVbESD Section 2: Questions 14–17, 21).
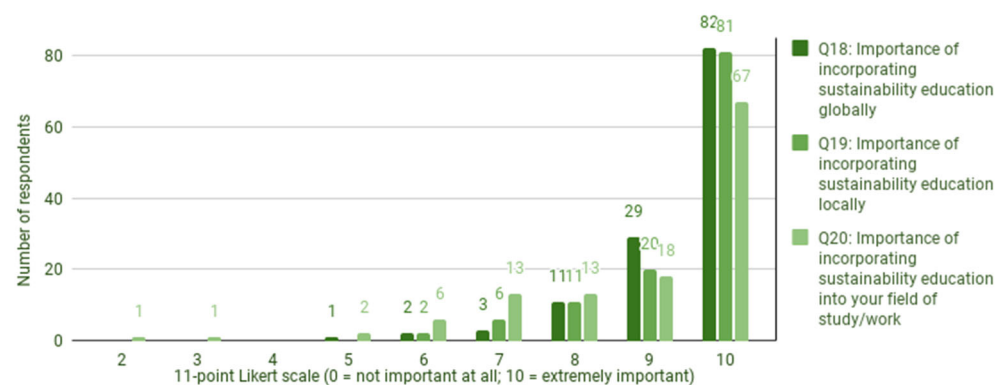

Figure 5. Participants' rating of the importance of incorporating education for sustainability education on multiple levels (results from SEVbESD Section 2: Questions 18–20).

The majority (91 respondents; 71.1%) of respondents felt that the best way to incorporate sustainability into the education system was through an integrated, foundational manner into the school and curriculum, and "brought up in any subject possible and tied into assignments, projects, discussions, extra- and co-curricular activities, and the operations and environment of the school and staff behaviours". Secondly were "into core, mandatory subjects" with 56.3% of respondents and "into all existing subjects" at 51.6% respondents. A total of 39.1% of participants believe that sustainability should be its own core mandatory subject, and 24.2% believe the same but as an elective course. Other suggestions were to include at least one lesson per subject that relates to sustainability as a minimum; to embed sustainability within the building structure and construction as well; to honour the importance of agricultural and horticultural education and outdoor education in school gardens; and to foster it as a value similar to responsibility and kindness, "ingrained in the mindset rather than taught explicitly".

5.1.3. Section 3: Values-Based Education and Sustainable Development

The questions from this section were branched off depending on whether or not the participant is involved with the VbE movement. There were 8 participants (6.25%) who identified as involved with the VbE movement, and 120 (93.75%) as not involved. Those involved represented VbE advisors, affiliates, educators, and former students.

Within the 8 participants involved with VbE, all 8 agreed that VbE provides the framework to foster the values and attitudes for sustainable development, and empower its students for a more sustainable world (responses ranged between 6 and 10) and all of them

agreed that VbE could be used even more powerfully for the same goal (responses ranged between 7 and 10). All participants from the VbE community agreed that sustainability could be fostered as an intrinsic value similarly to kindness and respect, and that a framework using VbE for sustainable development would be valuable to the education system (answers for both questions ranged from 7 to 10).

Of the 114 non-VbE practitioners, all participants but one agreed that having sustainability as an intrinsic value would foster the attitudes and behaviours needed for sustainable development, and empower individuals for a more sustainable world, and that our education can be used more powerfully for that goal, with 51.7% and 55.8% participants scoring it as 10 for 'strongly agree', respectively. In terms of fostering sustainability explicitly as an intrinsic value through deliberate teaching and modelling, 52.5% of participants strongly agreed, with everyone except two participants scoring higher than 5 (one participant scored 4 and 5 each). In total, 61.7% of respondents strongly agreed that a framework that can foster sustainability as an intrinsic value would be valuable to the education system, with responses for that question ranging from 7 to 10, and one participant scoring 5. This distribution is visually shown in Figure 6.
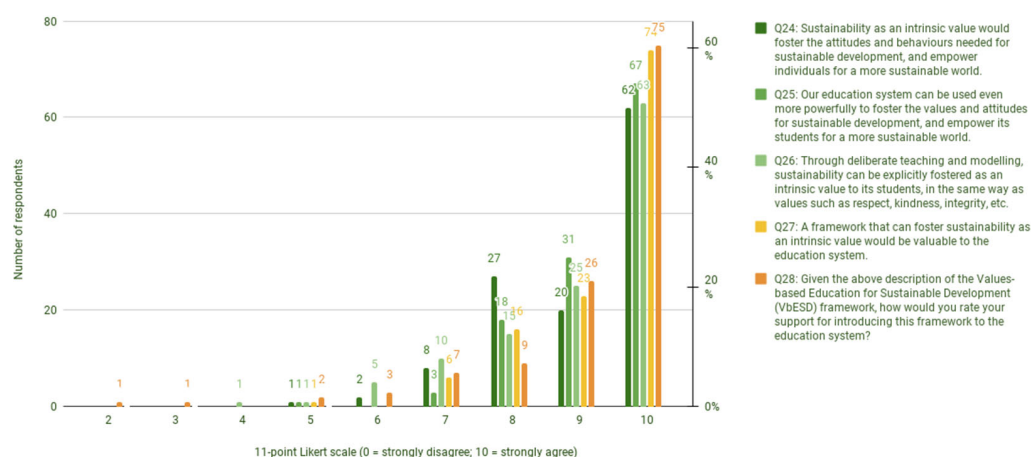

Figure 6. Perspectives of VbE and sustainable development from non-VbE practitioners (results from SEVbESD Section 3B: Questions 24–28).

Additional comments in this section included that non-traditional styles of teaching can be useful too (i.e., games and shows); that older individuals can change as well and that education programs for sustainability should also look at implementation within community centres; that policies are integral to the process and that governments uphold various unsustainable values that need to be fundamentally changed; that sustainable development can be made into its own important subject; that most of what select participants have learned about sustainability was learned outside of their school (friends, family, social media, self-learning); that values need to not only be practiced at school but in the home environment too; that with VbESD children can grow up with values that their parents and home environment may not have or teach; that the ability to make certain sustainability choices come with privilege; that knowledge of sustainability does not necessarily mean change, and that other players such as businesses have a greater influence on standard practices; that extracurricular programming, experiential learning, and outdoor education can be other highly valuable sources of learning for sustainability; and that the economic model needs to be aligned with these values otherwise it might make it frustrating when faced with real-life choices in a bigger model without sustainability as a value.

5.1.4. Section 4: The Call for Values-Based Education for Sustainable Development

Out of 128 responses, 86.7% of participants responded that they have been taught values in a school setting before, most of them in a primary setting and most of them being explicit in mentions of the value as well as the staff leading them by example. In total,

33.3% of participants reported a significant impact on their life from the values education, while 64.9% of them reported 'yes, somewhat' to the impact with a variety of reasons why.

In contrast, 82.0% of participants had received education on climate change before, most of them in a post-secondary school setting (63.8%) with secondary education and extracurricular training/education following, respectively. A 90.7% majority of respondents learned about the effects of climate change, and the solutions, definition, importance, and science behind climate change were all taught to about 70–80% of respondents. The responses on the impact of sustainability education on the participants were almost split equally between significant and somewhat of an impact (50.5% and 46.8%, respectively). Many examples of impacts were given, including changes to daily choices and behaviours as well as pursuing further sustainability-related education or careers.

After reading the statement of VbESD being a framework that can foster sustainability as an intrinsic value, 60.5% of respondents scored their support as 10 out of 10, and 57.2% were willing to adopt the framework within their own teaching if they were a primary school teacher. All responses in these two questions were scored with a 5 or more, with the exception of a '2' on the support due to the respondent living in an area that would not have perceived parent support, and a '3' for unknown reasons. Comments in this section included how children are highly impressionable at this age and being in this environment can be inspirational for their lifetime; how VbESD can combat the passive outlook currently on the environment and the waste we produce; how children are the future; how sustainability might be a value that obtains pushback; that corporations and other powerful financial agents have a bigger impact relatively and that children should be aware of them; that it is harder to influence individuals when they get older; that primary education is key although it would be challenging; that this should also be implemented on a corporate level; that there seems like there is nothing to lose from implementing this framework; that there is insufficient support for teachers to integrate this into their curriculum as their capacity is limited; that parents need to be a part of solidifying actions with the student as well; that sustainability needs to be taught in an integrated way with other topics such that connections can be made in day-to-day environments; and that other ways of introducing sustainability (i.e., children's books, games, stories) can also be used.

5.1.5. Section 5: Support and Barriers to VbESD

This section is also divided into specific questions for educators and non-educators.

Out of the 40 participants who identified themselves as educators, almost half (48.72%) already incorporate sustainability education into their teachings as much as they can. In total, 33.3% incorporate it a little bit, 5% incorporate only what is in the curriculum, and 12.8% do not incorporate it at all.

Bigger-Scale Support and Barriers within Educators

Over half (53.66%; 22 participants) of educators who participated in the survey "extremely support" the introduction of VbESD into the general teaching community (shown in Figure 7). On a bigger scale, the top perceived barriers for the adoption of VbESD within educators are a lack of approval and support from those in power (14 respondents) and a three-way tie between a lack of time to prepare; lack of knowledge around sustainability; and a lack of practice and behaviour modelling for sustainability (11 each). In terms of general barriers, the top three were a lack of readymade resources (28 respondents), lack of knowledge on the topic (27 respondents), and a lack of approval and support from those in power (27 respondents). Comments from this section include that support from superiors would be pivotal; that financial support would be a big barrier as many educators need to find that themselves; that a clearer definition would be helpful, as much of the curriculum in their local education system is up to the teachers' own interpretation and delivery; that current teacher knowledge is lacking in sustainable development and this needs to be established first; and that having readymade materials and resources would be helpful.
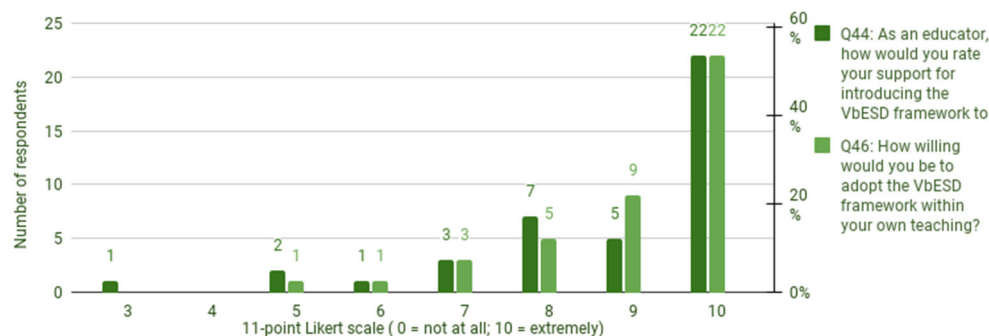
Figure 7. Educators' support for Values-based Education for Sustainable Development (results from SEVbESD Section 5A: Question 44 and 46).

Comments relating to how these barriers can be overcome include paid training and teacher education; fostering emotional proximity to those not directly affected by the matter; providing teachers with resources; support from the school board and those in charge; acknowledgement that educators do not need to live a perfectly sustainable life to teach its importance; consulting teachers who have had success with the practice to leverage their teaching styles and techniques; and integrating community-based decisions into pedagogy (i.e., asking students how they feel about it). The most common theme observed in this section is educator training, knowledge, awareness, and understanding.

Individual-scale support and barriers within educators

Individually, over half (53.7%) of educators were willing to adopt the VbESD framework into their own teaching, with all respondents scoring their willingness at a 5 or more (Figure 7). The biggest 'top-three barriers' on an individual scale for educators were the lack of approval/support from those in power (11 respondents), lack of financial resources (10 respondents), and lack of space in the curriculum (9 respondents). Overall, the barriers with the most selections were the lack of readymade resources (24 respondents), lack of approval/support from those in power (23 respondents), and a tie with 19 respondents each for the lack of financial resources and lack of space in the curriculum.

Comments from this section included that support from higher-ups and management would make a big difference, and it would provide motivation even if there was no inherent interest; that the teacher first needs to understand the importance of sustainable development in order to communicate that to their students; that outdoor time is vital to developing care in students; that external resources (i.e., speakers, field trips, videos) would be helpful for both the teacher and students' learning and participation; that training on effective ways to teach sustainability would be beneficial as for funding; that teaching environmental education is not mandatory and often relies on educators' own interests; that the whole structure of what it means to teach needs to shift; and that teachers' own knowledge needs to be grounded in order to teach it.

Comments relating to possible solutions to the presented barriers include the following: incorporating sustainability and values within the curriculum already; administrative support; having well-thought-out resources; training programs and funding for existing organizations who do this work; collecting data and evidence to show its success; having an educator-based conference or workshop at the beginning of each year to introduce this framework; and having a mandate or enforcement to align with VbESD.

Support and barriers within non-educators

Outside the educator community, the top five barriers to adopting a framework for sustainability education are as follows: lack of financial resources and support (72% respondents); lack of internet interest and intrinsic motivation (65.9%); lack of approval/support from those in power (64.6%); and a lack of space in the curriculum (62.2%). There is an interesting cap between the lack of approval/support from those in power and that from the community, with the latter only chosen by 41.5% respondents. Comments elaborat-

ing on barriers included resistance to change the current pedagogy; lack of political and community approval and funding especially in towns that are more reliant on extractive resources; educators who may be stubborn and unwilling to change; that sustainability as a value may be harder to visualize tangibly in its results, as they are not always directly visible; that there is a common view currently of academic subjects being separate from individuals' intrinsic values and practices; that the reality is that not everyone will be motivated; that classes not tied to grades and marks may be dismissed as unimportant and a waste of time; that schools with limited financial resources may not be able to deliver quality programming if it is different from classical programming; that politics play a big role in the shaping of curricula; and that educators have historically had a lack of support when implementing changes and it is an unfair burden for them. Common themes within these barriers are that political influence is important to curriculum or education system change, that support from those in power is necessary, and that change in general will see resistance and pushback.

In terms of solutions to overcome these barriers, comments included the following: more support from governments and higher-ups; increasing the budget for related educational programs; having resources and readymade lesson plans for teachers not already knowledgeable on sustainability; integrating it into existing courses if new ones cannot be made; having student voices heard and incorporated into advocating for the framework; teacher training; having an economic benefit as an incentive; having consistency in the framework's language and implementation; bringing these issues to media to influence politicians and public opinions; top-down policy-driven change; creating extracurricular opportunities for engagement; presenting solutions to higher-ups instead of issues; organizing voluntary internal committees within schools where teachers discuss how to incorporate sustainability or VbESD into their curriculum; consultation with relevant stakeholders but also the frontlines of the teaching; and having more scientific evidence. Major themes within these are the importance of political support, educator training, and provision of readymade resources and clear steps for curriculum integration.

5.1.6. Section 6: Important Aspects to VbESD

Participants were asked to rate 18 different elements on their importance to the VbESD framework (Figure 8). Out of 128 respondents, the elements that over half of them selected as 'extremely important' (those with over 64 respondents) are as follows: support and commitment from higher-ups (81 respondents); a well-structured framework with clear steps (70 respondents); collaborative and transdisciplinarity to infuse sustainability into all divisions of the school (68 respondents); a clear definition of sustainability (67 respondents); focusing on the solutions to climate change and unsustainable behaviour (66 respondents); education on the science of climate change (65 respondents); experiential learning (65 respondents); and clear learning objectives and measurable competencies (65 respondents).

Other elements brought up by respondents included involving external stakeholders and the community; influencing politicians and government action; encouraging extracurricular clubs to focus on sustainable development and possibly earning credits with such participation; having an international focus; empowering teacher-led initiatives; obtaining parental support; showcasing practices from other cultures on how to take care of the land; including dietary education and alternative medicines; and balancing the issue of educationalization.

In total, 96% of participants responded that if they had the option to, they would have liked their primary education to have implemented a VbESD framework, with 4% responding "I'm indifferent". Out of the different education levels, primary education was overall deemed the most important to implement a VbESD framework in (44 respondents (36.1%) scored it as such) followed by middle education, where 25 (21.2%) respondents scored it with a 1 (most important) and 31 (26.3%) scored it 2 out of 5. This ranking distribution is visually depicted in Figure 9.

Figure 8. Important aspects for the VbESD framework (results from SEVbESD Section 6: Question 48, items i–xviii).
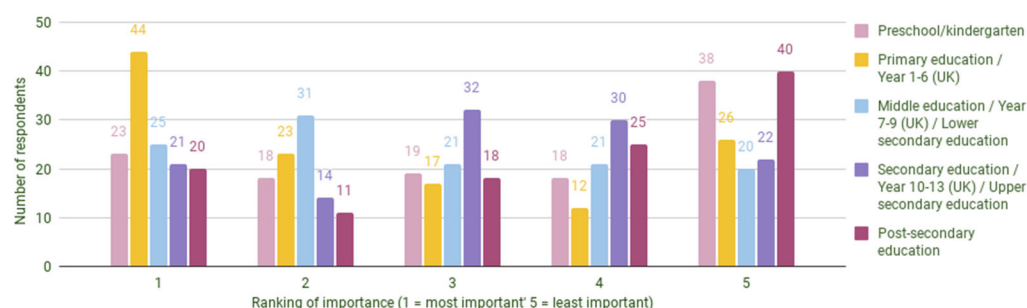

Figure 9. Rankings of importance for the implementation of VbESD into different education levels (results from SEVbESD Section 6: Question 52).

5.2. Results from the SIVbESD

The results from the Survey to Implement Values-based Education for Sustainable Development consisted of data collected from 29 individuals, obtaining results which at a confidence level of 95% would have a margin of error of 18%. In total, 19 participants (65.5%) were non-educators and 10 (34.5%) were educators. All 29 respondents had completed the SEVbESD prior to filling out the SIVbESD.

5.2.1. Feedback from the VbESD Introductory Presentation

Out of approximately 35 attendees to the VbESD presentation, a total of 6 formal responses were gathered about the presentation on the SIVbESD. All scores ranged between 8 and 10 in terms of the participants' understanding of VbESD after the presentation, the increase in learning about the framework from the presentation compared to them reading it through on their own, and how interesting and engaging the presentation is. Most participants would be interested in both synchronous and non-synchronous

e-learning modalities for further and more specific VbESD training, with a majority for non-synchronous. A total of 66.7% of participants would be interested in the design and implementation of a serious game relating to VbESD or sustainability [67].

5.2.2. Educators' Perceptions and Responses

After having understood the VbESD framework, all educators rated 5 or more in the 11-point Likert scale in terms of their support, the importance, and urgency of implementing the VbESD framework (see Figure 10). Compared to non-educators (Figure 11), educators seemed to rank the same metrics lower on average. Comments from educators aside from their support included that while urgent, it is important to also take the time to solidify details before implementing it, and that it may be a slow process to implement, however valuable. In terms of the feasibility of VbESD, scores for global implementation ranged from 4 to 9 with the mode being 7; scores for country-level implementation ranged from 5 to 10 with the mode being 6; local scale scores ranged from 3 to 10 with the mode being 9; and scores for VbESD feasibility into their own school ranged from 4 to 10, with 6, 7, 8, and 9 scores all selected by two educators. The common theme within comments was that global feasibility is much more uncertain and challenging due to different policies, societal values, contexts, and government, but that smaller (i.e., developed countries, regional areas, school boards) scales can lead and inspire change on bigger levels.
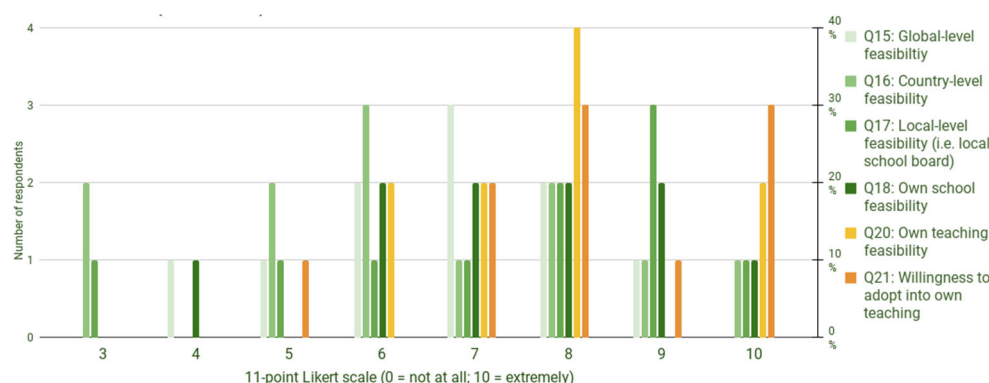

Figure 10. Educators' perspectives of VbESD's feasibility and willingness to adopt the framework after having seen the working model (results from SIVbESD Section 3A: Questions 15–18, 20–21).

Scores ranged from 6 to 10 with 8 being the mode for educators' rating of the feasibility of VbESD into their own teaching, and from 5 to 10 (modes of 8 and 10) for their willingness to adopt the framework within their own teaching (Figure 10). Comments included that the model was clear and easy to follow; that it was inspiring; that a top-down mandate may be more encouraging; and that primary level would be ideal so that they can build the values and have them developed when they are at post-secondary level, as opposed to only developing them then. Educators scored the effectiveness of VbESD to empower their students for ESD goals ranging from 7 to 10 (mode = 9) and the difference the framework will make ranging from 6 to 9 (mode = 8). The common theme in comments related to VbESD's impact is that a small-scale level (i.e., single class) may not have as much impact but that if implemented across subjects and at a whole-school level or even multiple classes throughout multiple years, it would undoubtedly impact its students. Other comments included that VbESD balances the possibility of overwhelming students with the global climate crisis and their role within it through a positive and local-hero viewpoint, as well as the interest in future research on the minimum amount of implementation to see a difference. A total of 90% of educators responded that they would have liked their primary education setting to have implemented a VbESD framework, with the 10% (1 respondent) responding "I'm indifferent" with the reasoning that they had other, extracurricular settings instil the values for them. If their primary schools had implemented a VbESD framework, scores for the difference it would have made to their lives ranged from 3 to 10 (mode = 9),

with comments of how it would have built knowledge and habits, been empowering, and inspired community engagement and contribution.

Support and barriers: On a bigger scale, the top 'top-three' barriers were the lack of interest from students (5 respondents) and lack of financial resources (4 respondents). Overall, the barriers that were selected by 8 of the 10 educators were the lack of compensation for the work, lack of training, lack of knowledge on the topic, lack of financial resources, and a lack of clarity and consistency on what 'sustainability education' is. Solutions provided included evidence, financial support, clear framework, policy mandates, change in education philosophy, and teacher patience, persistence, and passion. Individually, there were six 'top-three' barriers that were selected by 3 of the 10 teachers: lack of time to prepare, lack of space in the curriculum, lack of compensation for the work, lack of readymade resources, lack of enforcement or management system, and lack of approval/support from those in power. Interestingly, lack of interest from students received no votes as the 'top-three'. Overall, teachers on an individual scale perceived a lack of readymade resources (8 respondents) as the biggest barrier, followed by a tie between a lack of time to prepare and a lack of approval/support from those in power (6 respondents each). Possible solutions offered included higher-up support, further simplification, practice, financial incentives, mandates, and bottom-up change alongside empowerment.

5.2.3. Non-Educators' Perceptions and Responses

Out of 19 non-educator participants, the scores for their support to incorporate VbESD into the education system ranged from 7 to 10 (mode = 10). Bigger-scale feasibility scores ranged from 4 to 10 (mode = 8) and local-scale feasibility scores ranged from 4 to 10 as well, but with a mode of 7 and 8 and a higher mean. Comments stated various challenges, such as the amount of time it might take, political resistance, funding, and limited resources. Scores for VbESD's effectiveness to empower ESD goals ranged between 5 and 10 (mode = 8), and between 5 and 10 (mode = 8) for its difference-making impact. Comments included that it could have significant impact; that family pressure and beliefs may be a hindrance; that it can inspire adults; and that the teacher's ability and pedagogy makes a big impact. All 19 non-educators responded "yes" to having had VbESD if they could go back in time, although one comment stated that their elementary school had some of the elements already. The perceived difference it would make to the participants themselves if they had VbESD at their own primary school had scores between 5 and 10 (mode = 8) and comments supported the impact while also noting the impact of other factors that led to the participants' sustainability values and behaviours today, as well as to consider the potential that some students may not internalize and integrate the learnings into their real life. All non-educators (see Figure 10) scored VbESD's importance as 6 or more (mode = 10), its urgency as 7 or more (mode = 10), and their willingness to adopt the framework as a primary teacher as 5 or more (mode = 10). Figure 11 illustrates these results alongside responses of educators.
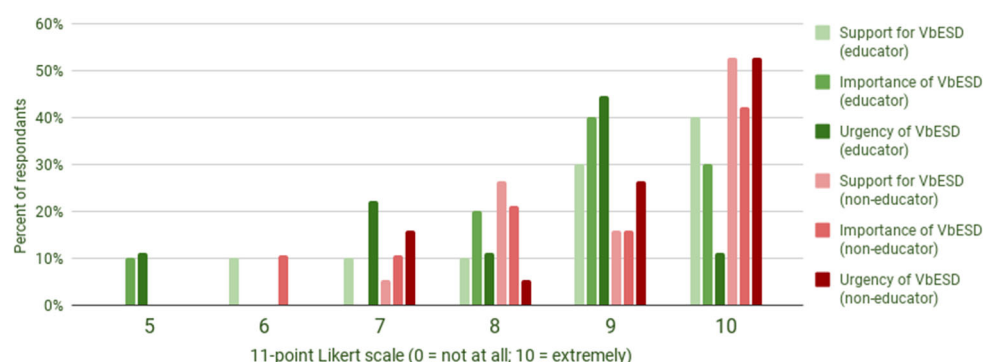

Figure 11. Perceived support, importance, and urgency of VbESD amongst educators and non-educators (results from SIVbESD Section 3A: Questions 11–14; Section 3B: Questions 11, 21, 22).

5.2.4. Perceptions of the VbESD Framework

Out of the 29 respondents, all of them believe that VbESD can foster the values and attitudes needed for sustainable development and empower individuals for a more sustainable world (all scores were 6 or higher, with the mode being 10), that sustainability can be fostered as an intrinsic value with VbESD, and that the VbESD framework would be valuable to the education system (scores ranged from 5 to 10; mode = 10 for the latter two). Comments supported that theoretical values-teaching is insufficient and there needs to be concrete actions as well.

5.2.5. Important Aspects to VbESD

Out of the eight pillars, the top pillars ranked for 'extremely important' to the VbESD framework are the leadership pillar (15 respondents), ethical vocabulary pillar (13 respondents), and a tie at 12 respondents for both the modelling and sustainable school operations pillar. The top pillars ranked for 'extremely impactful' for imbedding sustainability as an intrinsic value are the modelling pillar (14 respondents), a tie between the atmosphere and ethos and leadership pillars for second place (11 respondents each), and another tie between the reflection and ethical vocabulary pillars (10 respondents each). Across the pillars, at least 8 and 7 respondents thought each pillar was 'extremely important' or 'extremely impactful', respectively. In terms of level of education for VbESD implementation, 69% (20 respondents) ranked primary school to be the most important, followed by middle education (7 respondents), and preschool/kindergarten (6 respondents). Post-secondary education was ranked the least important, with 17 respondents rating it the least important compared to the other levels. The rated importance and impact of the VbESD pillars are displayed in comparison in Figure 12.
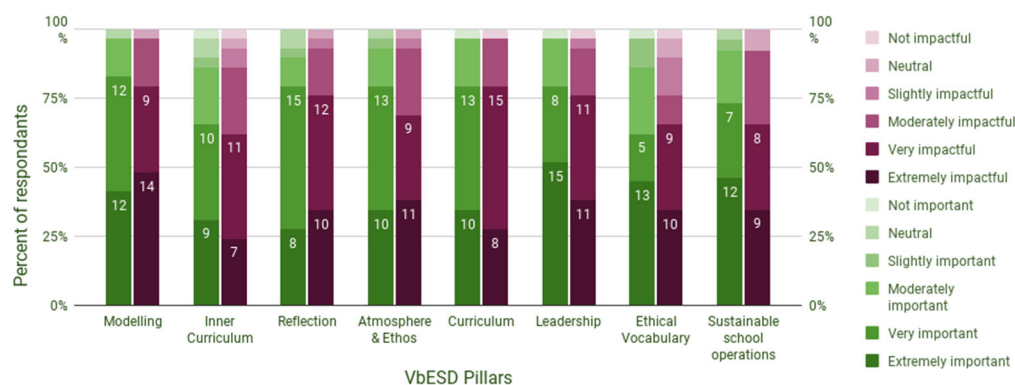

Figure 12. Perceived importance and impact of VbESD pillars (results from SIVbESD Section 5: Question 39–40).

6. Discussion of Insights, Limitations and Next Steps

6.1. Insight from the SEVbESD and SIVbESD Results

The SEVbESD and SIVbESD results provide a strong justification of the need for the VbESD framework, as well as preliminary support for its development. Undeniably, a strong interest in and support for developing and implementing the VbESD framework is observed, rooted in existing values of sustainability and recognition of its importance. All of the sampled population are at least neutral to or value sustainability, and believe that it is important as an intrinsic value as well as important to incorporate into the education system, both globally and locally. Most of the surveyed population believe that the best way to incorporate sustainability into the education system is through a holistic, comprehensive approach where sustainability is integrated into the school and curriculum as the foundation, and all/any topics and assignments possible, including school operations, extra/co-curricular activities, and staff behaviour. Most of the respondents had values education in primary school, with their teachers using language containing values as well as leading them by example. However, the impact for most of the surveyed population could

have been more significant, outlining a valuable opportunity for the VbESD to implement more impactful and powerful values education. In comparison, most respondents had education related to climate change or sustainability in their post-secondary education. Most reported that the sustainability education they received was impactful, although the level of impact was split equally between significant and limited. All participants regardless of age group and demographics were either neutral or in favour of implementing the VbESD framework. A summary of the key findings are presented in Figure 13.
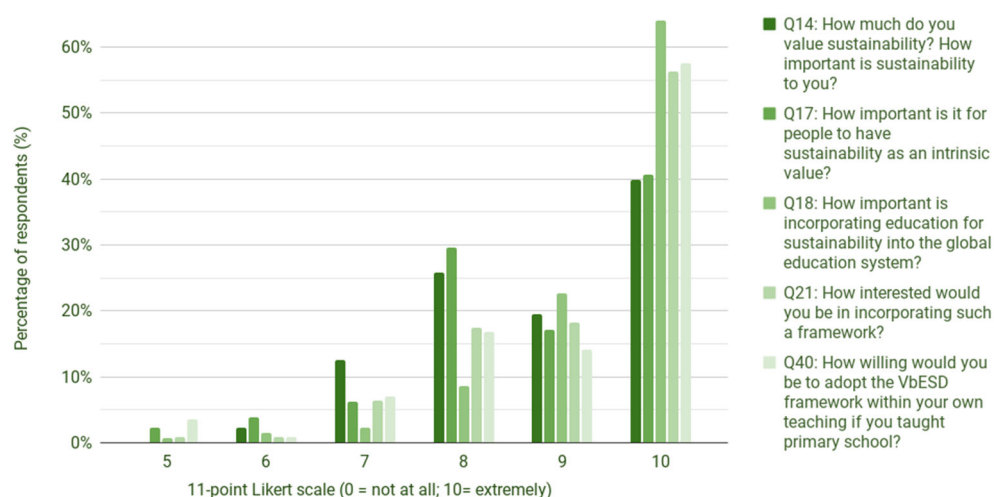

Figure 13. Select results from the survey to establish VbESD demonstrating its key findings.

Within the VbE community: Although there was very limited feedback obtained from the actual VbE community and individuals involved with the VbE movement, a preliminary scope was still able to be obtained from the surveys. All respondents from the VbE community believed that VbESD could be successful and valuable, although there is a critical lens regarding the feasibility of the framework at this early stage of VbESD's development. There are three differing views that have been observed through both conversations with the VbE community and their feedback from the surveys. The first is that VbE can be successfully applied to VbESD as their core models are very similar and sustainability is a value that can be fostered intrinsically using the VbE methodology. A second view is similar to the first, with the difference that VbESD may not be necessary as a full distinction to VbE, seeing that various VbE educators already implement sustainability education within their own teaching and VbE itself is sufficient to drive ESD. A third view is that VbESD could be highly valuable but there would need to be major considerations for the local stakeholders, not only the education system but also other institutions and corporations whose support will be needed. This view is supportive of VbESD but requires concrete and actionable steps on how it can manifest. Altogether, there is a general support for VbESD within the VbE community but more tangible methodology will need to be provided to better assess the feasibility of the framework in specific cases.

Outside the VbE community: The survey responses very clearly demonstrated that teaching about sustainability does impact learners and influence their values, behaviours, attitudes, and interests later in life. Therefore, a clear and powerful demand for a framework such as VbESD exists. After having seen the framework, this support and interest remained. Looking at the perception of feasibility of VbESD outside the VbE community, there is a visible trend of increasing feasibility perceived at increasingly local levels, especially amongst educators. Many educator respondents shared that globally, feasibility will be much more challenging with different curricula, education systems, knowledge, local contexts, impacts of climate change, and more, but that locally schools can lead by example and have the VbESD influence work its way up. Within an individual level, there are various willing participants to incorporate this model in their teaching, although there is also a common theme of educators believing that this work is more impactful at a

primary school level, and that for educators at higher levels, not as much impact can be delivered unless the students already have these values in place beforehand. Amongst non-educators, there are common views of bureaucratic and political barriers that may decrease its feasibility. Alongside worries to such barriers, however, exists clear overarching support and interest for VbESD's development.

Common themes within the survey results included the recognition that educational settings with more developed affective and sustainability education are needed and valuable; that educator support, knowledge, and training are the ultimate enablers of VbESD's implementation; that ready-made resources are crucial; that VbESD implementation must be integrative; that a lack of financial and social support from authority bureaucratic processes and conservative attitudes may be key barriers; and that if well-implemented, VbESD has significant potential to inspire, empower, and transform future generations and lead sustainable development.

6.2. Limitations of the Current Research

One significant limitation of this research is the lack of involvement and consultation from the VbE community. While there was overarching guidance and support from the IVET Foundation, the research timeline and planning did not allow sufficient time for deep, quality, and adequate representation, consultation, and involvement from VbE educators, affiliates, and advisors, who were originally a significant part of the research and development phase of the framework. Without a comprehensive consultation process with one of the main stakeholders and audiences of VbESD, the proposed framework can only be a preliminary working model at best. Next steps engaging the VbE community will be described in more detail in Section 6.3.

Related to the lack of VbE representation is also the limited perspective from experts in sustainability education, such as EE/EfS/ESD/etc., educators; curriculum designers; school management staff; and other individuals already within the sustainability education space and ecosystem. While the results are still valuable in understanding the unrivalled demand and support for VbESD on a public level, having their representation—especially in the SIVbESD—would significantly increase the validity of the framework to be applicable in real-world education settings.

Another limitation is the low number of participants of the SEVbESD and SIVbESD in general. Because the target population of the survey was the general public (with special interest in educators and members of the VbE community), the sample size needed for a 95% confidence level and 10% margin of error would be 97 participants. With 129 and 29 participants in the SEVbESD and SIVbESD, respectively, this target was satisfied with the SEVbESD. However, the margin of error almost doubles to 18% for the SIVbESD, calling for the need of follow-on research. Nonetheless, even with this increased margin of error, the key findings of the research hold strong and there is still a very valuable opportunity for the development and implementation of VbESD in the education system at all levels.

At the same time, there was a lack of diversity within the sample population, as their sources were mainly from personal connections, second-level connections, or individuals with a shared interest or experience (i.e., member of a shared Facebook group, connection from a shared event). While this does not pose a deep threat and limitation to the data, there is a possibility of sampling bias. In addition, it limits the statistical analyses (i.e., comparisons) that could be possible with larger sample sizes within each subpopulation. Next steps in expanding the surveyed population will be described in more detail as well in the next section.

6.3. Next Steps for the Development of VbESD

There are a variety of next steps for the development of VbESD; this article only presents the preliminary work that has been carried out, such as setting a groundwork for the framework and establishing baseline support from the community. The framework is

still in its early stage and a working model where theory will be shaped into actionable items and more tangible applications.

Further consultation with relevant stakeholders: Seeing that the VbESD framework has had limited consultation within the Values-based Education community (i.e., VbE advisors, affiliates, educators, and students), quality consultation with the VbE community presents a significant opportunity and next step for the further development of VbESD. The VbE community is a primary target audience for VbESD, mainly because VbE schools are already almost fully there and already have the mindset and training to best incorporate VbESD. In addition to consulting with the VbE community, the greater education community and other educators need to be consulted in order to understand how to structure the VbESD framework to address their barriers faced and how to best integrate it with existing non-VbE curricula. Experts in sustainability education and related curriculum design are another audience highly valuable to validate the VbESD model. Other stakeholders that are important for VbESD to consult include policy-makers, politicians, parents, climate activists, curriculum designers, and students. Additionally, 51% of respondents to the SEVbESD stated that they would be interested and willing to participate in a more in-depth conversation regarding VbESD's development. Each audience would provide valuable insight on how to design the VbESD framework to maximize its effectiveness and momentum. Engaging in conversations with these key audiences not only helps the VbESD framework's development, but it also simultaneously furthers its reach, engagement, visibility, and support such that the conversation can be brought to more and more audiences.

Further analysis of survey results and secondary objectives: The scope of this research did not provide the necessary time and resources to fully dive into the full potential of the survey results' analysis. A more in-depth analysis of both the SEVbESD and SIVbESD (i.e., secondary and additional questions/objectives) is possible and a significant next step for the development of VbESD, as it will provide deeper insight and understanding of its needs, barriers, and supports. Results from the SEVbESD can be used to identify and explore any correlations between a participant's previous experiences and their willingness or interest in VbESD. More specifically, possible trends between their demographic, whether or not they experienced VbE as a student, whether or not they practice VbE, whether or not they value sustainability, and how much knowledge and/or education around sustainability they possess can be explored. Another observation of interest would be identifying the most common perceived barriers to implementing VbESD, whether there is a difference in perception between implementing it on a general level and an educator-specific level, and where discrepancies lie. Examples of secondary questions of the SEVbESD include the following:

- Do various age groups, countries, or past or current educational experience with either values or sustainability result in greater or lesser support and/or interest for VbESD on the different levels?
- Is there a difference between educators and non-educators in their support for VbESD and perception of barriers on different levels? For example, what are the differences in perceived barriers between educators and non-educators? Between VbE practitioners and non-VbE practitioners? Between individuals with different levels of sustainability? Between individuals with different previous experiences or demographics?
- Is there a difference between educators and non-educators in their selection of important elements to include within the framework? If so, what are the differences?
- Are certain elements of values and sustainability education correlated with increased impact, and if so, which ones?
- Are individuals who have had more impactful values or sustainability education more likely to be supportive of VbESD?
- Do individuals usually choose the critical window of education as the same one they received values or sustainability education within, and is the impact they experienced another factor as well?

Development of the curriculum and learning objectives/competences: Seeing as VbESD's greater goal and picture is Education for Sustainable Development, its learning objectives for the VbESD curriculum will be based off of the "Learning for the Future: Competences in Education for Sustainable Development" as outlined by the UNECE [3] as well as the "Education for Sustainable Development Goals Learning Objectives" by UNESCO [2]. Both documents will be consulted and are equally important, because as the former document states, "the competences in ESD described in this document are those of educators and not of learners, although both are intricately related" [3]. The competences provide a very clear picture of what learners would experience if their educators possessed them, especially if supplemented with the learning objectives highlighted in the latter document. The UNECE recommends that the competences should be a basis for the review of curriculum documents and that approaches to educational practice should be supported by such curricula. These approaches are highly aligned with the development of a VbESD curriculum, and there is no doubt that a curriculum with both VbE and ESD influences would be powerful and transformational. A major next step for VbESD's development is to create such a 'Curriculum Guideline', such that VbESD can be easily integrated into any existing curriculum.

Educator training and professional development: In order to incorporate VbESD into a school, it needs the commitment and participation of everyone in the school, meaning that educator training is crucial for their success. The VbESD framework therefore needs to be supported by a high-quality training program for any interested schools. After developing the framework, the next step would be to develop the training program for interested schools, and how to adequately prepare a school and its staff to implement VbESD. Values-based Education already offers various types of training and consulting to support schools interested in implementing their approach, and collaborating with their organization would be highly valuable and a next step for the development of VbESD's educator development training programs. This element was identified throughout the survey as a key component to the success of VbESD, and it is imperative that the training is comprehensively and intentionally developed.

Ensuring the delivery of sustainable education, not simply sustainability education: There is increasing dialogue about the concept of sustainable education—knowledge delivery that ensures balanced economic and social development and fulfils the needs of future generations [6,7,68]. Through this lens, aspects of education that may not have been considered as related to sustainable development may emerge, such as equitable opportunity to access to the education in the first place. The development process of the VbESD framework therefore needs to examine any privileges that play a role in who is able to access such education. For example, socioeconomic statuses and financial barriers may play a role in elitism within education, and in that case—how can VbESD remain equitable and "leave no one behind", as the overarching principle of the SDGs? Having these considerations throughout VbESD's development stages will ensure that potential barriers are actively identified and mitigated.

Developing VbESD e-learning modalities: With e-learning modalities being more and more commonplace since the global COVID-19 pandemic, it would be valuable for VbESD to develop training within e-learning modalities. New forms of digital learning and modalities may motivate students further, such as using augmented reality technologies to stimulate virtuous behaviours through gaming dynamics [69,70]. As per the SIVbESD results, both synchronous and asynchronous modalities were of interest, and thus, asynchronous e-learning modalities for above-mentioned staff training will be explored further. A plan to integrate e-learning with in-person training will be created to maximize efficiency and effectiveness of the blended learning and training format.

Pilot programs: After the full development of the VbESD framework, training programs, resources, and action plan, interested schools can then adopt VbESD as pilot programs to evaluate its success, effectiveness, and areas for improvement. These pilot programs will be essential to determine the real-life application of VbESD and how its implementation can

be structured so that any school can implement it with as few barriers as possible. Seeing the closest communities of VbESD's audience are VbE schools and local Canadian schools, pilot programs will likely take part in both communities and combined feedback used to drive the final stages of VbESD's development.

Further research on the framework's effectiveness: Through the VbESD pilot programs and subsequent implementation, research to determine the framework's effectiveness and real-world added value will be instrumental in assessing the success of the framework as well as ensuring its continued improvement. Future research will include qualitative and quantitative investigations exploring whether ESD-related competencies and learning outcomes have been achieved, evaluations on the schools' sustainable practices, assessments of students' emotional and ethical intelligence, resilience, sustainability mindset, and leadership, innovation skills, and other indicators of ESD and sustainability as an intrinsic value within the school's students, staff, and collective culture.

7. Conclusions

In conclusion, there exists the groundwork and community-level support, interest, and motivation to build a comprehensive, feasible, and evidence-based framework to integrate an intrinsic value of sustainability into educational environments using a Values-based Education approach to Education for Sustainable Development. This article demonstrates this exact groundwork by providing the context, theory, concept, community-gathered data, and an explanation of fundamental pillars for such a framework titled Values-based Education for Sustainable Development (VbESD).

Through a literature review, it has been established that while sustainability education is a recognized necessity for sustainable development, its real-life implementation has had limited success. Various methods have been tried yet few quality, long-term successes have been documented. Values-based Education is an approach that has, on the other hand, been developed and successfully implemented in over a hundred schools.

This article successfully demonstrates the fundamental support and feasibility for the development of a framework for Values-based Education for Sustainable Development, as well as a preliminary working model of the VbESD framework using the principles, pillars, and model within Values-based Education for the outcomes of Education for Sustainable Development. Various next steps are also identified for further research and development of VbESD. Indeed, the development and implementation of a framework such as VbESD will take considerable consultation, intentionality, ambition, and active commitment, but as much as it is challenging, its manifestation will be rewarding, powerful, and transformative.

Education is the mechanism through which individuals and communities not only learn but unlearn values, attitudes, skills, and knowledge; adapt to and adopt new mindsets; reflect on and reflect from behaviours and actions; challenge existing norms and create new ones; inspire and empower others with their newfound insights; and catalyse innovation and social change. Education is the keystone conduit for all other SDGs, and it is only with quality education that the global society can thrive. Education needs to traverse the formal, informal, and non-formal; the cognitive, psychomotor, and affective; the hard skills and soft skills. But at the core of all thinking and behaviour lies values, which shape individuals' interactions with the world. When an individual possesses and lives a set of holistic, positive values, they will inherently also gain the skills and leadership to build a more sustainable community and world.

Values-based Education for Sustainable Development is an educational approach that combines the roots of what is needed—the development of positive values, quality education, and sustainable development—and delivers them to children's educational environments. With the proper development and implementation, VbESD can be the key to a world of "peace and prosperity for people and the planet" that the Agenda 2030 strives for [71].

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Conflicts of Interest: The authors declare no conflicts of interest.

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