Through the lens of teachers: Understanding the Implementation of Sustainability as a Cross-curriculum Priority in Western Australian Schools

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I declare that this thesis is my own account of my research (except where other sources are fully acknowledged by footnotes or referencing) and contains as its main content work which has not previously been submitted for a degree at any tertiary education institution.

This research/study has been approved by the Murdoch University Human Research Ethics Committee (Approval 2017/198) and has met the policy requirements of the Department of Education.

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(Kristina da Silva-Branco)
Abstract

Education for Sustainability (EfS) can be understood as an effort to equip individuals with the knowledge and skills necessary to make environmental, social and economic decisions that consider the needs of present and future generations. In Western Australia (WA), EfS has been incorporated into the official state curriculum by the School Curriculum and Standards Authority (SCSA) as a cross-curriculum priority (CCP) (referred to as the Sustainability cross-curriculum priority [SCCP]). To date, very little research has been conducted on the various factors contributing to the implementation of the SCCP and whether these factors are connected to teachers’ perceptions of sustainability, the curriculum and/or teaching practices. This research sought to explore the integration of the SCCP into the curriculum through the lens of practising primary school teachers. In this study, nine primary school teachers in the Perth metropolitan region (five generalist; four specialists) were interviewed about the extent to which the Western Australian Curriculum has guided and supported their teaching practices in relation to sustainability and the SCCP, their perceptions of sustainability and their methods for teaching the SCCP. The findings showed that: 1) both generalist and specialist teachers are integrating the SCCP into their teaching practices across various learning areas to various extents; 2) in addition to the curriculum, teachers recognise the need for additional support and resources, school leadership being a relevant one; and 3) teachers’ understandings of sustainability captures its multiple dimensions as described in the literature (i.e., the social, economic and environmental dimensions of sustainability) and has resulted in the adoption of a multidimensional approach to teaching. Through detailed and rich examples of
classroom practice the participants illustrated the web of inter-related factors that characterise the implementation of the SCCP. Overall, the most salient take-home message of this work is that teachers are the main actors driving the implementation of the SCCP, making informed decisions about how the curriculum is to be incorporated in their teaching while responding to students’ interests and needs.
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The benefits of education permeate all walks of life right from the moment of birth. If we are to eradicate poverty and hunger, improve health, protect our planet and build more inclusive, resilient and peaceful societies, then every individual must be empowered with access to quality lifelong learning, with special attention to opportunities for girls and women. The evidence is unequivocal: education saves lives and transforms lives, it is the bedrock of sustainability. This is why we must work together across all development areas to make it a universal right.

-Irina Bokova, former Director-General, UNESCO

(UNESCO, 2014, P. 24)
THE IMPLEMENTATION OF SUSTAINABILITY AS A CROSS-CURRICULUM PRIORITY

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Chapter 1: Introduction

Originally from Canada, I immigrated to Australia in 2013 in the hope of continuing my career as a primary school teacher. A few years later, I was given the opportunity to teach science at a primary school in Perth, Western Australia (WA). As I became familiar with the curriculum documents and resources available through a range of websites and professional development/learning sessions, I began to realise how difficult it was to not only teach in accordance with the curriculum requirements, but to teach using strategies that would promote successful student achievement. In addition to the pressures of meeting curriculum expectations, teachers in Australia are also expected to include three cross-curriculum priorities in their teaching practices: that is, the sustainability cross-curriculum priority (SCCP), the Asia and Australia’s engagement with Asia priority and the Aboriginal and Torres Strait Islander histories and cultures priority. From my perspective, the lack of guidance teachers receive in relation to the implementation of these cross-curriculum priorities, the number of hours they should spend teaching these priorities and the lack of any definition of the scope of these priorities and the sequence in which they should be taught increase the difficulties of an already challenging situation.

In my practice, I found that the SCCP was the most difficult cross-curriculum priority to implement. This was largely due to the complexity of the SCCP in terms of the conceptual understandings it requires and the controversial issues it sometimes raises. As the focus of the SCCP was also relevant to my previous studies, I believed that it was important to ‘get it right’ when teaching. As I began to read the relevant literature, I realised the important role teachers play in the SCCP implementation. I also realised that the focus on the SCCP extends far beyond regular class-based lesson plans and includes not only the transfer of knowledge
and awareness but also the tools necessary to address future sustainability issues (e.g., global warming and resource use).

As a science specialist with a specialisation in geography, the perception I held (and hold) of sustainability is that it is a very complex concept. Even with my background knowledge, I was still puzzled as to how I was expected to implement sustainability concepts in my teaching practice and uncertain as to whether I was including all its essential aspects. I also felt that I was not being provided with sufficient explicit support from the curriculum. For example, I was not provided with any assistance or guidance on how to integrate the SCCP across different learning areas; however, this is how the SCCP was intended to be implemented. Consequently, at that time, I did not perceive the SCCP as a priority nor did I feel confident or equipped to include it in my teaching practice. I also wondered whether other teachers perceived the implementation of the SCCP in a similar way.

My experience triggered a number of questions, including: What do teachers understand by ‘sustainability’ and how do their understandings affect their teaching practices? Which learning areas are being integrated with sustainability and how does this look in practice? Is the implementation of the SCCP affected by teachers’ perceptions and to what extent is its implementation influenced by the curriculum? Hence, this study aims to understand the factors influencing the implementation of the SCCP and whether these factors are connected to teachers’ perceptions of sustainability, the curriculum and their teaching practices. Within this study, ‘teaching practices’ refer to an all-encompassing understanding of teachers’ pedagogical choices concerning the implementation of sustainability. These can include their teaching methods, the learning and teaching activities in the classroom and any whole-school initiatives. Decisions about the sustainability content that teachers choose to
include in the teaching of the SCCP are therefore part of what is regarded as teaching practices in this dissertation.

This thesis will next provide a review of the relevant literature through which the significance of the research questions is argued, while also identifying relevant gaps in the extant research (see Chapter 2: Literature Review). Following this, the research problem, aims and questions of the research study are presented, and a description of the research methodology is provided (see Chapter 3: Methodology). Research findings are discussed in Chapter 4. Finally, this thesis concludes with a discussion of the research findings, an examination of the limitations of this study, an account of the researcher’s journey and brief conclusion (see Chapter 5: Discussion).
Chapter 2: Literature Review

Introduction

This study sought to understand the integration of the SCCP by investigating teachers’ perceptions of sustainability, the role of the curriculum and teaching practices. Through the examination of teachers’ voices, the processes that are currently in place in a sample of Western Australian primary schools were examined.

This chapter begins by describing the complexity of sustainability and the importance of education for sustainability. This chapter also examines the inclusion of the SCCP at the state and national levels. Next, the relevant literature is discussed in relation to teachers’ perceptions of sustainability, its integration via a cross-curriculum approach and its inclusion in teaching practices. Finally, this chapter examines the gaps in the literature, including a consideration of whether teachers’ perceptions, the curriculum and teaching practices have been found to influence the implementation of sustainability.

What is Sustainability and Why is it Complex Area to Teach?

Sustainability is defined as meeting the environmental, economic and social needs of all those who inhabit the planet in ways that do not compromise the needs of future inhabitants (UN, 1987). Considerations of sustainability should include how it is taught and presented in formal educational settings. While UNESCO uses the term Education for Sustainable Development, in Australia this is generally referred to as Education for Sustainability (EfS) (ARIES, 2009). This term is used when sustainability is included in formal education settings. EfS seeks to equip individuals with the knowledge and skills
necessary to make environmental, social and economic decisions that consider the needs of present and future generations (UN, 1987).

In an educational context, sustainability is a complex area that encompasses multiple components (see Figure 2.1). It is multidimensional in that it includes social, economic and environmental dimensions. Sustainability can be taught beyond the confines of a typical classroom environment, as it encourages skills such as critical, ethical and creative thinking that are developed primarily through active engagement in school-wide and/or community-based projects. With the development of these skills, teachers and students are expected to consider global issues at a local level by applying their teaching and learning to the local community. As a result, teachers and students can explore and discuss a variety of sensitive and possibly controversial topics.

**Figure 2.1.** The complexity of sustainability.
1. **Sustainability is a multidimensional construct: Economic, social and environmental**

A study conducted by Dyment and Hill (2015) considered the perceptions of initial teacher education students in relation to sustainability, EfS and the SCCP in Australia. Student participants were asked to list five words that they associated with the word ‘sustainability’. The words ‘Environment/Natural’ were listed in over 59% of responses. Conversely, the words ‘Economic’ and ‘Social’ were listed in only 3.9% and 3.4% of the responses, respectively. Thus, pre-service teachers’ initial perceptions of sustainability appear to be largely ecologically focused. However, as mentioned above, sustainability is unique, as it is composed of different dimensions (economic, social and environmental), each of which contribute to its understanding (UN, 1987). Further, it is quite common for various issues to overlap among dimensions; for example, access to clean water may be considered both a socioeconomic and environmental issue. However, to understand its multidimensionality, each dimension must first be understood separately (as presented below)

**Economic sustainability: Meeting the needs of today without compromising future generations**

Economic sustainability involves society’s development of quality jobs and decent working conditions that focus on the incorporation of sustainable economic growth and mutually benefits both humans and the environment (UN, n.d.). For example, different sectors, such as agriculture and fisheries, may rely heavily on economic sustainability as a means of ensuring financial security (by maintaining healthy livestock) while minimising the environmental risk of operations. Other economic sustainability concepts include human consumption patterns, wealth distribution and production efficiency. Economic sustainability
does not always seek to prevent individuals from using non-renewable resources; rather, it aims to ensure that these resources are used in ways that will enable further generations to continue to access and use them (Moldan, Janouskova & Hak, 2012). Further, the use of non-renewable resources may be considered sustainable if these resources are accessed and used sparingly and in ways that consider the needs of future generations. Sustainability also entails an understanding of our dependence on non-renewable resources and an understanding that it may be necessary to slow the depletion rates of non-renewable resources to ensure orderly societal transitions to renewable resources in the future (Moldan et al., 2012).

**Social sustainability: Encouraging sustainable communities**

Social sustainability relates to the wellbeing of humans within their surrounding environment by emphasising the importance of society working towards a common goal in a consistent and cohesive manner (Moldan et al., 2012). Factors that create socially sustainable communities include providing shelter, nutrition, health, education and permitting cultural expression (Moldan et al., 2012). Examples of social sustainability can be seen within the UN Sustainable Development Goals (UN, 2015a). The first six of these goals are all related to social sustainability: no poverty, zero hunger, good health and wellbeing, quality education, gender equality and clean water and sanitation (UN, 2015a). Notably, the third goal for good health and wellbeing was developed to promote wellbeing and ensure that all human beings are given the opportunity to lead healthy lives (UN, 2015a). By providing access to clean water and sanitation and the necessary medical support required to eradicate diseases and emerging health issues, this goal should increase life expectancies and reduce child and maternal mortalities (UN, 2015a).
The emphasis on social responsibility is also prevalent in this dimension. For example, the goal for global citizenship reflects the notion that human survival should not impede the progress of other humans (McFarlane & Agueda, 2011). In addition to addressing the challenges of the 21st century, this goal seeks to establish a collective society in which global citizenship is emphasised. A socially sustainable community should be diverse but should also provide equal opportunities to all and promote healthy and safe contexts to encourage social progress. Thus, the responsibility of maintaining or creating a socially sustainable environment is centred on the capabilities, priorities and intentions of a community.

*Environmental sustainability: Protecting Earth’s natural systems*

The environmental strategy of the Organisation for Economic Co-operation and Development (OECD, 2001) identifies five environmental sustainability objectives: protecting ecosystems through effective natural resource management; promoting economic growth that does not place unnecessary pressures on the environment; developing measurable indicators for effective and informed decision making; integrating social and environmental dimensions to improve the quality of living; and improving cooperation on a global scale. The most recent report from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) emphasises the first objective, protecting ecosystems, and identifies increased land degradation, unsustainable harvesting of marine fish stocks and the rise of plastic pollution in oceans world-wide. These factors are associated with approximately one million animal and plant species that are currently threatened with extinction (UN, 2019).
According to the Millennium Development Goals Report 2015 (UN, 2015b), environmental sustainability is also associated with socioeconomic prosperity. Thus, there appears to be an overlap between the different dimensions of sustainability. For example, providing clean water, proper sanitation and reducing the proportion of the urban population living in slums (social sustainability) would ensure that water sources, such as river and lake ecosystems, remain healthy (environmental sustainability).

2. Controversial issues form part of sustainability

Discussions about sustainability are value laden and may require individuals to address controversial or sensitive issues. Thus, rather than promoting ‘a specific world view’, EfS requires listening and responding to a variety of perspectives while encouraging critical thinking (Cotton, 2006 p. 68). This can make sustainability more complex to teach. Further, the discussion of controversial issues may be subjected to scrutiny by the families of students. For example, parents or guardians may hold different opinions as to whether controversial issues, such as population control or climate change, should be considered in a primary school setting. This may place pressure on teachers to adopt a neutral position, which in turn may affect how and the extent to which teachers teach sustainability (Buchanan, 2012).

In addition, sustainability requires a minimum knowledge base if potentially controversial discussions are to be taught. For example, topics such as immunisation and climate change often provoke strong feelings and debate within the public domain. At first glance, it could be argued that both topics could be discussed based purely on general opinions (as they often are); however, an informed discussion requires scientific literacy. For example, though immunisation can be considered a social sustainability issue, discussions on this topic need to be informed by culturally based knowledge and knowledge of the human
body and population health. Similarly, discussion about climate change will require an understanding of the Earth’s climatic systems and cycles.

3. **Sustainability includes the development of skills**

Sustainability encourages the learning of skills that are recognised as necessary for preparing students for a diverse range of 21st-century work environments (Partnership for 21st Century Learning, 2015). These skills, such as promoting the development of creative, innovative and critical-thinking and problem-solving skills, reflect 21st-century learning and can be used to empower students to address future sustainability issues (Partnership for 21st Century Learning, 2015). In teaching sustainability, students are also encouraged to reflect on their own thinking and to communicate and collaborate effectively with others.

Further, teaching sustainability to children from a young age (i.e., to children in Year One or students aged 7) can help them to develop scientific and ethical thinking skills that can contribute to ‘creating a solid cognitive foundation to [the students’] environmental perspective’ and extend students’ connections with local places (Cruz, Espedido & Abeledo, 2015, p. 649; Green & Somerville, 2015). Thus, the challenge for primary school educators is to design learning experiences that not only comprise content relevant to sustainability, but that also scaffold the development and practice of students’ higher-order skills.

4. **Sustainability considers global issues at a local level through active engagement**

As McFarlane and Agueda (2011) argue, variations in definitions of sustainability have little or no meaning to the general public. People tend to feel overwhelmed and helpless when they think beyond their own lives and begin to think about all the issues that require attention and mitigation at a global scale. The intensity of global issues can be so overwhelming that
students (and teachers) may believe that little can be done (McFarlane & Agueda, 2011). Encouraging active engagement in the community can serve to minimise the feelings of helplessness articulated above while encouraging students to develop civic virtue, altruism, conscientiousness, courtesy, teamwork and team mindedness (McFarlane & Agueda, 2011). By acting locally, students can be empowered and begin to see themselves as agents of change. Acting locally can also promote a sense of efficacy among students in their ability to participate in decision-making processes. Consequently, the role of primary school teachers extends to teaching students how to become knowledgeable citizens and to realise their connection to global issues, while recognising their ability to exert change at a micro level (McFarlane & Agueda, 2011). Focusing on students making small daily changes to routine activities, such as turning the lights or faucets off when not needed, can all contribute to students developing a sense of global empowerment at a local level without becoming overwhelmed.

5. **Sustainability: an integrated approach across learning areas**

In addition to the multidimensional nature of sustainability and its associated challenges, cross-curriculum integration requires sustainability concepts to be linked to other learning areas, such as Mathematics, Science and/or Health and Social Sciences (HASS). An integrated and multidimensional approach such as the one intended by the Australian Curriculum, can provide unique opportunities for teachers to integrate sustainability with other learning areas and to grow their repertoire of teaching practices and learning experiences for students (Hayes, 2010). However, there are also risks associated with this form of implementation (Salter & Maxwell, 2016). For example, when considering the integration of sustainability throughout the curriculum, teachers may feel that other learning areas should take precedence to such an extent that the focus on the SCCP may become non-
existent (Dyment & Hill, 2015). In addition, teachers may not feel efficacious about their understanding of sustainability and/or about how to integrate sustainability content in a cross-curriculum fashion.

What is Education for Sustainability and Why is it Taught?

Globally, sustainability can be taught under various ‘umbrellas’, such as Environmental Education, Education for Sustainable Development, Learning for Sustainability, Biodiversity Education or, in the case of this study, EfS (Delgado, 2007; Lindemann-Matthies et al., 2011). For the purposes of the present study, the term EfS was adopted. EfS incorporates both education and learning; however, while the term ‘education’ refers more closely to the school sector, ‘learning’ can occur in a variety of contexts, such as in workplace or community settings (Delgado, 2007). This study also refers to ‘sustainability’ rather than ‘sustainable development’, as Australia is considered a ‘developed’ country. Additionally, in support of the decision to adopt this terminology, many recent studies conducted within Australia have also adopted the term EfS (i.e., Evans, Whitehouse & Gooch, 2012; Kennelly, Taylor & Serow, 2012; Salter & Maxwell, 2016; Taylor, Nathan & Coll, 2003; Wilson, 2012;). EfS reflects a shift away from the terminology of ‘Environmental Education’. This shift also reflects a shift in focus from ecological knowledge and changing values and attitudes to a more holistic perspective that considers systematic lifestyle choices and actions directed at moving towards a sustainable society (Delgado, 2007, pp. 40–41).

According to Taylor et al. (2003, p. 293), EfS has four major goals in the Australian context:

1. to foster clear awareness of, and concern about, economic, social, political and ecological interdependence;
(2) to provide students with opportunities to develop the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment and achieve sustainable forms of human development;

(3) to encourage the emergence of responsible patterns of behaviour towards the local and global environment by individuals, communities and business; and

(4) to nurture a sense of intergenerational solidarity recognising sustainability principles as key to people’s improved quality of life.

EfS is considered an important aspect within any school system, as it develops students’ critical- and ethical-thinking skills and extends students’ connections with local places by encouraging them to assume more active roles in their surrounding communities (Green & Somerville, 2015; Wilson, 2012). Further, some studies argue that EfS assists children to develop an ‘awareness and knowledge about what it means to belong and be connected to a wider ecological system’ (Green, 2017, p. 164; and see Folke et al., 2011). Thus, the role of schools extends far beyond the school grounds and consists of incorporating social activities to encourage and motivate students and increasing their awareness of and relationship with the world around them (Vince Cruz et al., 2015).

EfS comprises learning processes that increase students’ knowledge and awareness about the environment and any associated changes; ensures students development of the necessary skills and expertise to address challenges, and fosters students’ attitudes, motivations and commitment to making informed decisions and engaging in responsible actions (Kopnina, 2015, p. 988). Overall, the inclusion of EfS in the education sector is considered necessary to encourage and maintain students’ social interactions with their communities, school grounds and other local places (Green & Somerville, 2015; Kopnina, 2015).
EfS encourages collaborative behaviour and encompasses problem-solving and inquiry-based learning. It allows teachers to assume an active role within their schools and provides a means of developing essential skills and strengthening relationships between the school and the community. EfS also aims to help develop students’ capacities to address environmental issues and promote economic stability as well as a fair society for current and future generations (Mills & Thomas, 2014). Thus, the aims of EfS align to the description of sustainability presented in this study.

The Implementation of Education for Sustainability in Australia

In Australia, EfS has been implemented at both the national and state levels. This has been achieved via the implementation of a national curriculum and several related initiatives presented next. At the national level, these initiatives include those operated by the Australian Research Institute for Environment and Sustainability (ARIES), the Australian Sustainable Schools Initiative (AuSSI), the Australian Association for Environmental Education (AAEE) and the Australian Education for Sustainability Alliance (AESA). Following this, the role of the national curriculum authority, the Australian Curriculum, Assessment and Reporting Authority (ACARA) and the role the SCSA (WA’s curriculum authority) are discussed. The latter is included to provide context to the present study.

Australian Research Institute for Environment and Sustainability

An Australian Government initiative, Australian Research Institute for Environment and Sustainability (ARIES) was established in 2003 and is an example of the presence of EfS at the national level in Australia. ARIES is a research, consultancy and education centre at Macquarie University in Sydney, New South Wales and was formerly known as the Australian Research Institute in Education for Sustainability (ARIES, 2019; AESA, 2014).
Since 2009, ARIES has been an independent not-for-profit research and consultancy centre that works closely with specialists from multiple disciplines to educate and encourage change for sustainability across various sectors including educational organisations (ARIES, 2017b). According to ARIES (2017a) EfS goes beyond simply educating students about sustainability and focuses on developing students’ capacity for change and thus educating for sustainability.

**Australian Sustainable Schools Initiative**

In addition to ARIES, the Australian Government’s Department of the Environment, Water, Heritage and the Arts (DEWHA) developed the AuSSI to provide practical support to schools and their communities to live and work more sustainably (DEWHA, 2016, para. 1). The AuSSI was a pilot project in 2003. After its successful implementation in New South Wales and Victoria, it was launched as a national initiative, with Tasmania being the last state to join in 2007 (Australian Government Department of the Environment, Water, Heritage and the Arts, 2010). This initiative provides state funding for the whole-school development of sustainable projects and includes government, independent and Catholic school sectors (Australian Government Department of the Environment, Water, Heritage and the Arts, 2010). States and territories have different ways of identifying this initiative for instance, in WA, it is referred to as Sustainable Schools WA (SS-WA) (Government of Western Australia Department of Education, n.d.).

AuSSI emphasises a whole-school approach to the integration of the SCCP and provides schools with teaching resources, staff training and links to existing programs that are already being implemented in schools (DEWHA, 2016). AuSSI partners with the states and territories to support a network of sustainable schools. Overall, AuSSI strives to improve students’ understanding of the complexity of the world in which they live by developing their
knowledge, critical-thinking skills, values and capacity to participate in decision making about environmental, social and economic development issues (DEWHA, 2016, p. 2).

**Australian Association for Environmental Education and the Australian Education for Sustainability Alliance**

The AAEE is the main professional body for Environmental Educators across Australia. It not only provides support to educators across Australia, but also encourages collaborations via the development of a network for educators. The AAEE assists educators to develop skills in the area of environmental education and provides professional development opportunities for educators to ensure they remain abreast of sustainability education (AAEE, 2017).

AAEE is also a member of the Australian Education for Sustainability Alliance (AESA) which aims to ensure that ‘all Australians have the opportunity to receive effective education that instils knowledge, practices and values of sustainability, through the formal education system’ (AESA, 2016a, para 1). AESA is comprised of multiple organisations that prioritise sustainability within the education system and look to make Australia more sustainable. AESA has also developed sustainability resources for teachers such as the *Getting Started with Sustainability in Schools* website (AESA, 2016b).

**Australian Curriculum Assessment and Reporting Authority**

ACARA is the national authority on curriculum development and implementation in Australia. Despite that each state can adapt the national curriculum to suit its own context, both national and state educational bodies refer to EfS as a Sustainability Cross-Curriculum priority (SCCP). Having said that, EfS should not be considered synonymous of the SCCP. EfS consists of the inclusion of sustainability concepts and the development of particular
skills within an educational environment. Conversely, the SCCP refers to the cross-curriculum priorities outlined by ACARA and the SCSA. The SCCP is not taught independently; rather, it should be integrated within various learning areas, including but not limited to Science, Mathematics and English (Australian Curriculum, 2010d).

The Australian Curriculum was based on the Melbourne Declaration of Educational Goals for Young Australians (the Melbourne Declaration) and sets out the expectations as to what all young Australians should learn. The Melbourne Declaration was developed by Australian education ministers who agreed to two overarching educational goals for young Australians: ‘Goal 1. Australian schooling promotes equity and excellence’ and ‘Goal 2. All young Australians become successful learners, confident and creative individuals, and active and informed citizens’ (ACARA, 2016, Section 1.1).

Goal 2 of the Melbourne Declaration addresses sustainability, stating that students should become active and informed citizens and ‘work for the common good, in particular sustaining and improving natural and social environments’ (Ministerial Council on Education, Employment, Training and Youth Affairs [MCEETYA], 2008, p. 9, para. 15). The Melbourne Declaration also refers to a commitment to action in relation to curriculum and assessment and states that environmental sustainability is to be integrated across the curriculum (MCEETYA, 2008, p. 14).

ACARA has since addressed the Melbourne Declaration by developing an Australian Curriculum that it is suitable for all students (Australian Curriculum, 2010d). The Australian Curriculum met this objective by including eight mandated learning areas, three cross-curriculum priorities and seven general capabilities (see Figure 2.2). These three dimensions acknowledge ‘that each student is entitled to knowledge, understanding and skills that
provide a foundation for successful and lifelong learning and participation in the Australian community’ (Australian Curriculum, 2010d, para. 3) (see Figure 2.2).

Figure 2.2. The three dimensions of the Australian Curriculum (Australian Curriculum, 2010c).¹

Figure 2.2 provides a visual representation of the eight learning areas, seven general capabilities and three cross-curriculum priorities. It provides an overview of the national

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curriculum, which sets the expectations for what all young Australians should learn throughout their years of schooling from Foundation to Year 10. The general capabilities are expected to be integrated in each learning area; however, teachers can integrate the cross-curriculum priorities based on their relevance to specific learning areas. Thus, the approach to the implementation of the cross-curriculum priorities is less prescriptive.

A section of the Australian Curriculum website provides an overview, an outline of the key concepts and ways for integrating the SCCP concepts within other learning areas (i.e., the learning area statements). The Australian Curriculum website also includes brief explanations as to how teachers can integrate the SCCP within the learning areas of English, Mathematics, Science, HASS, the Arts, Technologies, Health and Physical Education and Languages (Australian Curriculum, 2010b). As an illustration, an extract from the Arts section of the website is presented below:

The Arts

The Australian Curriculum: The Arts provides engaging and thought provoking contexts in which to explore the nature of art making and responding. It enables the exploration of the role of The Arts in maintaining and transforming cultural practices, social systems and the relationships of people to their environment. Through making and responding in The Arts, students consider issues of sustainability in relation to resource use and traditions in each of The Arts subjects. The Arts provides opportunities for students to express and develop world views, and to appreciate the need for collaboration within and between communities to implement more sustainable patterns of living. In this learning area, students use the exploratory and
creative platform of The Arts to advocate effective action for sustainability.

(Australian Curriculum, 2016, para. 8)

This is different to the Western Australian Curriculum which provides similar descriptions but currently links only to English, Mathematics, Science and Humanities and Social Sciences. Additionally, the Australian Curriculum website also includes icons that identify cross-curriculum links across learning areas and subjects. These icons appear throughout relevant content descriptors that teachers can link to the cross-curriculum priorities.

Prior to the development of the national curriculum, the Sustainability Curriculum Framework was introduced in 2009 to provide a structure to support ‘a progression of learning from Kindergarten to Year 10’ (DEWHA, 2010, p. 4, para. 1). The purpose of this framework was to provide policy makers and curriculum developers from all educational jurisdictions within Australia with a guided framework that indicated how EfS could be incorporated within the national and state/territory curricula; however, it did not seek to describe how EfS should be taught. In other words, the Sustainability Curriculum Framework was designed to provide guidance as to how to EfS could be incorporated within the curriculum without indicating in a prescriptive fashion how it could or should be implemented. It also provided a framework for students in Kindergarten to Year 2, Years 3 to 6 and Years 7 to 10 that included the principles, purpose and logic of the framework (DEWHA, 2010).

ACARA’s Australian Curriculum (current version 8.4) also offers organising ideas for the SCCP based on the Sustainability Curriculum Framework, which can be consulted by teachers and first appeared in version 1.2 of the Australian Curriculum in 2011 (Australian
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Curriculum, 2010a). These organising ideas provide teachers with a basic indication of the scope of and sequence for the SCCP. The organising ideas provide teachers with a general overview of the SCCP and are based on three main areas: ‘Systems’, ‘World Views’ and ‘Futures’ (Australian Curriculum, 2010b). For example, an organising idea for ‘Systems’ states that: ‘The biosphere is a dynamic system providing conditions that sustain life on Earth’ (Australian Curriculum, 2010b, para. 1).

School Curriculum and Standards Authority

ACARA is responsible for the development and monitoring of the national Australian Curriculum; however, each state and territory is responsible for the implementation of the Australian Curriculum and may adapt the curriculum to suit its own jurisdictional context. In relation to sustainability, the Western Australian Curriculum was developed by the School Curriculum and Standards Authority (SCSA). The SCSA (2014b, para. 1–3) provides its own interpretation of sustainability:

Sustainability addresses the ongoing capacity of Earth to maintain all life.

Sustainable patterns of living meet the needs of the present without compromising the ability of future generations to meet their needs. Actions to improve sustainability are both individual and collective endeavours shared across local and global communities. They necessitate a renewed and balanced approach to the way humans interact with each other and the environment.

Education for sustainability develops the knowledge, skills, values and world views necessary for people to act in ways that contribute to more sustainable patterns of living. It enables individuals and communities to reflect on ways of interpreting and engaging with the world. Sustainability education is futures-oriented, focusing on
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protecting environments and creating a more ecologically and socially just world through informed action. Actions that support more sustainable patterns of living require consideration of environmental, social, cultural and economic systems and their interdependence.

The definition provided on the SCSA’s website is simple and direct and clearly outlines the SCSA’s views of sustainability and EfS. However, unlike ACARA, the SCSA currently does not identify the SCCP within the content descriptors with an icon or provide an indication of scope or sequence to guide for teachers in the implementation the SCCP. Thus, it may be challenging for teachers to implement and integrate the SCCP as part of their teaching practices.

In WA, environmental challenges, such as water shortages and wildfires, are common. Such challenges reflect the environmental issues that greatly affect Western Australia both economically and socially. Thus, the teaching of sustainability and how to engage with local communities in ways that are reflective of sustainable thinking should be very relatable to students. These environmental challenges may make the teaching of sustainability more relevant to students who experience these dilemmas as part of their daily lives. Encouraging students to confront challenges and make ethical decisions could prepare students to mitigate sustainability challenges on a local or even global scale in the future. The relevance of sustainability to students in Western Australia is one of the reasons why the inclusion and an explicit presentation of the SCCP in the Western Australian Curriculum could be valuable for both students and teachers.

The majority of schools in Western Australia employ both generalist and specialist teachers. Generalist and specialist teachers may perceive sustainability and the SCCP
differently and may also integrate and implement it in their teaching practices differently. The complexity of sustainability and possibility of varying perceptions between generalist and specialist teachers, represent a seldom explored emphasis on the implementation of the SCCP in schools and more specifically, within teaching practices.

The SCCP is expected to be integrated across all learning areas as teachers find the opportunity to do so. However, specialist teachers may have the opportunity to integrate sustainability using teaching methods that are more relevant to their learning area. This may provide students with opportunities to become familiar with sustainability in a way that is truly cross-curricular and integrated with other learning areas. To date, no research has examined the differences between generalist and specialist teachers. This gap in the research needs to be addressed.

Teaching Sustainability

This chapter began by discussing the complexity of sustainability as a concept and the role, significance and Australian application of EfS. The present section delves into the relevant literature and explores the various components involved in teaching sustainability. Specifically, this section focuses on teachers’ perceptions of sustainability, the integration of sustainability through a cross-curriculum approach and finally, teaching practices relating to sustainability in educational contexts. The review will take place in this order, as the researcher’s own teaching experience showed that teachers are generally guided by their own perceptions first (be they personal or professional), then address the curriculum and finally, aim to implement curriculum expectations in practice.
Teachers’ perceptions of sustainability

In reviewing the literature, this section will provide an overview of 1) what is meant by teachers’ perceptions; 2) what factors affect these perceptions; and 3) what the outcomes, consequences and effects of specific perceptions are.

What is meant by teachers’ perceptions of sustainability?

A review of the literature revealed that while ‘teachers’ perceptions of sustainability’ is used often in published research (i.e. Lasen, Skamp & Simoncini, 2017), it is not often explicitly defined. For the purpose of this study, ‘perceptions of sustainability’ were operationally defined as teachers’ understandings, interpretations, perspectives and value-related judgements on sustainability, teachers’ views about the implementation of sustainability as a cross-curriculum priority and the thoughts or mental images that teachers associate with sustainability in their professional activities. This definition is consistent with the approach used by Taylor et al. (2003) that aimed to understand teachers’ perceptions of sustainability and their views on the benefits and challenges of implementing sustainability. The results of their study showed that teachers’ perceptions (whether they originated from professional or personal experiences) were linked with their practices. These findings are supported and elaborated further, with studies that show a relationship between how teachers perceive a particular learning area and the extent to which they implement and integrate that learning area in their teaching practices (Beijard, Verloop & Vermunt, 2000; Lummis, Morris, Lock, & Odgaard, 2016; Preston, 2015).

The success of national and state sustainability initiatives and the SCCP ultimately relies on teachers’ perceptions, including their understandings and interpretations of sustainability (Taylor et al., 2003). Contrary to other studies (such as that by Green and
Somerville in their 2012 study), this research was not focused on teachers or schools with a particular understanding or perception of sustainability; rather, this research sought to include the perceptions of teachers who had diverse understandings of sustainability. Further to this, this study also aimed at including varying experiences on the extent to which teachers implemented the SCCP regardless of teaching experience. This approach sets the present study apart from previous studies that have focused on the perceptions of pre-service and early childhood education teachers (such as those by Mills & Thomas (2014) and Lasen, Skamp & Simoncini (2017) respectively).

**What affects teachers’ perceptions of sustainability?**

Teachers’ perceptions may be affected by a number of factors both external to the school setting or internally driven. In relation to the first set of factors, teachers’ perceptions can be affected by parental perspectives and the fear of indoctrinating students (Cotton, 2006). The study by Cotton (2006) which consisted of interviewing geography teachers, found that teachers are also influenced by factors such as principals and exam/course requirements.

The inclusion of sensitive and often controversial topics when teaching sustainability coupled with the expectation that teachers are generally expected to remain neutral can be an overwhelmingly difficult task for teachers (Cotton, 2006). Further, the discussion of sensitive topics can be a subject to scrutiny by parents. For example, parents may hold differing opinions as to whether controversial issues should be discussed in a primary school setting. This may increase the pressure placed on teachers to maintain a neutral position, which may in turn affect their perceptions of sustainability, especially when considering whether to engage with certain content in their practice.
In turn, internal or within school factors that may affect teachers’ perceptions of sustainability include time and resource constraints (Cotton, 2006). Sustainability may not always be considered a priority within schools and may not be integrated across learning areas via the adoption of a cross-curriculum approach (Barnes, Moore & Almeida, 2018). Teachers may perceive sustainability as important, but may not have the time, resources or adequate support to implement it in their teaching practices. This may also occur because the SCCP can be considered an optional part of the curriculum; teachers are only expected to integrate it within other learning areas when they feel it is appropriate. Thus, it is not mandatory to have it in every lesson or learning area, especially when no explicit links are apparent.

Teachers who do not feel supported to implement sustainability initiatives may hold the perception that the culture of their school does not encourage the inclusion of sustainability and may prioritise other areas, such as literacy and numeracy (Lasen, Skamp & Simoncini, 2017; Nicolls & Thorne, 2017). Lewis, Mansfield and Baudains (2014), for instance, concluded that staff require additional support to embed sustainability issues through, for example, ‘professional learning opportunities, in-class teacher modelling, and performance management accountability to enhance integration of EfS’ (pp. 135–136). As a result, the amount of support that teachers receive within their own school contexts can determine the level of priority that teachers give to the implementation of the SCCP. The level of support can also affect teachers’ perceptions of the teaching of sustainability in their own pedagogies and practices.
What are the outcomes, effects or consequences of specific perceptions?

Teachers’ perceptions of sustainability, specifically their conceptual breadth, may determine the scope of what is taught to students. For example, studies have suggested that both pre-service and experienced teachers’ perceptions of sustainability are focused on ecological or science-based concepts (Birdsall, 2014; Corney, 2000; Dyment & Hill, 2015; Lummis et al. 2016; Morley, 2012; Nicholls & Thorne, 2017; Preston, 2014). Consequently, teachers may focus on issues such as local and national environmental issues rather than addressing all different dimensions or components of sustainability (Dyment & Hill, 2015; Spiropoulou, Antonakaki, Kontaxaki & Bouras, 2007). According to Green and Somerville (2015), the focus on environmental issues may be the result of teachers’ limited understandings of sustainability.

Green and Somerville (2015, p. 833) also identified ‘teachers’ lack of confidence and preparedness to conceptualise and practice sustainability’ as a limiting factor to the implementation of sustainability in teaching practices. As such, teachers’ confidence (or lack thereof) in conceptualising sustainability may contribute to how and the extent to which it is implemented in classrooms (Evans et al., 2012; Kennelly et al. 2012; Nicholls & Thorne, 2017). For example, if teachers’ hold the perception that a strong understanding of science is required to teach sustainability and they lack confidence in their ability to teach science, they may be reluctant to teach sustainability (Spiropoulou et al., 2007). Teachers who have to implement sustainability in learning areas that are outside their comfort zones may also be reluctant to adopt cross-curriculum approaches to teaching. Consequently, teachers may be confronted with learning new content and developing knowledge that may not be explicitly aligned to their preferred learning areas (Hayes, 2010).
It is important to understand whether the complexity of sustainability as a concept affects teachers’ perceptions of sustainability (or alternatively, how teachers’ perceptions affect their experiences of sustainability). Recent studies (cited in this section) have examined the perceptions of teachers who have specialised in areas associated with sustainability, but not the perceptions of teachers who are generalist teachers or who have specialised in areas that do not have traditional links to sustainability. The present study considered the perceptions of teachers who are not necessarily experts in sustainability, as this specific group of teachers has not yet been widely investigated. The study also examined whether teachers’ different understandings of sustainability provide any indication of how the SCCP is implemented across various learning areas in a primary school setting.

**Curriculum: A Cross-Curriculum Approach to the Implementation of Sustainability**

Due to its relevance with many learning areas, EfS is generally taught in an integrated manner rather than as a separate learning area or strand. For example, under both the Australian Curriculum and the SCSA’s curriculum, the SCCP should be taught by adopting an integrated approach (i.e., a cross-curriculum approach) across different learning areas (Australian Curriculum, 2010b; SCSA, 2014a).

There are many benefits associated with integrating sustainability as a CCP. A cross-curriculum implementation can be a valuable teaching strategy, as it allows teachers to see connections between learning areas; however, it can also be challenging (Hayes, 2010). A cross-curriculum approach may also provide rich learning opportunities for students in areas such as Visual Arts or Music. Recent research suggests that exposure to such forms of art can
promote cognitive fulfilment and motivate students to further engage with a subject area (McFerran, Hattie & Crooke, 2017).

The integration of sustainability as a whole-school initiative can also strengthen relationships between students and their local communities. A study conducted by Lewis, Baudains and Mansfield (2009) included a longitudinal case study at an independent primary school in Western Australia that was involved in AuSSI. The results of the study showed that since joining AuSSI, the school had demonstrated a growing commitment to EfS and had engaged in a range of ‘successful EfS projects’ (Lewis et al., 2009, p. 54). AuSSI implantation not only led to a greater inclusion of EfS within the school, but also led to increased funding opportunities from a range of organisations, staff and curriculum development and allowed for the planning of future sustainability projects within the school.

However, a cross-curriculum implementation of sustainability may also result in little attention being paid to sustainability itself (Dyment & Hill, 2015). The SCCP is expected to be integrated throughout the curriculum; however, in addition to the inclusion of the SCCP being optional, there are also no assessment or reporting expectations. Consequently, teachers may feel that other learning areas should take precedence in terms of their implementation and may choose not to focus on sustainability, despite it being considered a CCP. The extent to which a school prioritises the SCCP within their individual context can make the implementation of sustainability overwhelming for teachers (Buchanan, 2012; Cotton, 2006).

Hayes (2010) argues that an integrated approach is not as rigorous as teaching a learning area on its own. In an integrated approach, the focus remains generally on the development of the main learning area rather than the cross-curricular learning area (Hayes, 2010). This is especially true for learning areas in which the links are not always explicit.
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(Hayes, 2010). Furthermore, teachers may limit their focus on sustainability and may not include valuable skills, such as critical and creative thinking and/or problem solving (Lasen et al., 2017).

Recent studies have suggested that teachers feel that sustainability is not an area that can be easily integrated into what they perceive to be an already overcrowded curriculum (Evans et al., 2012; Nicholls & Thorne, 2017). Additionally, an examination of the Australian Curriculum by Kuzich, Taylor and Taylor (2015) found a lack of explicitness and emphasis within the Australian Curriculum in relation to the SCCP and the requirement that teachers teach ‘about’ or ‘for’ sustainability. Thus, teachers who are unfamiliar with EfS may find it difficult to identify sustainability links across all learning areas in the curriculum, especially if other learning area are prioritised within their school (Kuzich et al., 2015).

The Australian Curriculum identifies links to sustainability with icons; however, the icons may not be sufficient to ‘elicit reference to specific sustainability themes to focus on or how to teach related concepts and ideas’ (Barnes et al., 2018, p. 5). Further, there are no specific achievement standards in the Australian Curriculum or the SCSA’s curriculum to assist teachers to make informed judgements about their students’ learning of sustainability. Presenting sustainability as a cross-curriculum approach without any specific achievement standards or explicit themes/topics linking to content descriptors may pose challenges for teachers who are unsure of how sustainability should be taught or how to determine if it has been implemented successfully by assessing students’ learning (Barnes et al., 2015).

Research has been conducted on the benefits and challenges of implementing sustainability in a school context; however, very little is known about if/how teachers (in particular teachers in WA) have implemented the SCCP using a cross-curriculum approach.
Sustainability in teaching practices

Teaching practices should reflect and be consistent with the expectations outlined in the curriculum. Thus, an understanding of what teachers do and how the curriculum is referenced and used in teaching practices is essential. Some teachers may implement sustainability in their teaching practices when teaching a learning area, such as Science. Conversely, other teachers may implement sustainability when teaching Health and Physical Education. Regardless of where sustainability is integrated, a teacher who chooses to explore sustainability using methods that promote active learning is more likely to ensure that students engage in reflection and critical awareness about sustainability even if the development of these skills is not explicitly linked to sustainability in the curriculum (Anyolo, Kärkkäinen & Keinonen, 2018).

Sustainability can be included in teaching practices in several ways. Research on this topic has generally included two teaching strategies in the integration of sustainability: 1) constructivist approaches and inquiry-based teaching; and 2) intentionally planning for sustainability. This section discusses these three strategies and their role in the implementation and integration of sustainability in a school context.

Constructivist approaches and inquiry-based teaching

One way to teach sustainability is by adopting a constructivist approach. This approach would provide opportunities for students to become actively engaged in learning about sustainability issues through collaborative and cooperative strategies (Taylor, Quinn & Eames, 2015). Taylor et al. argue that ‘early constructivists, such as Piaget, Vygotsky and Bruner, believed that learning implies an active, student-centred process in which teachers take an interest in their students’ ideas’ (p. 35, 2015). Students are not empty vessels but are...
able to benefit from EfS if it is taught in a way that is ‘process driven, participatory and empowering, is liberatory and continuous’ (Huckle & Sterlin, 1996, p. xiv). Thus, EfS lends itself to be taught through a constructivist approach whereby teachers scaffold students’ construction of knowledge through prior observation and experiences of the world around them (Taylor, et al. 2015).

A cross-curriculum approach also enables students to apply content knowledge which can encourage students to develop their own learning (Dyment & Hill, 2015). One of the most effective ways to adopt a cross-curriculum approach in relation to sustainability is through inquiry-based teaching practices. Inquiry-based learning requires students to identify assumptions, engage in critical and logical thinking and consider alternative explanations to sustainability issues (Taylor et al., 2015). Taylor, et al. (2015, pp. 271–272) describe five types of inquiry that can be used to differentiate among students:

1. Confirmation inquiry: verifying concepts by following a predetermined procedure.
2. Structured (or directed) inquiry: following a dictated procedure to find an answer.
3. Guided inquiry: teacher usually provides a question and students design an investigation to find an answer.
4. Open (or full) inquiry: students formulate the question, and then develop and conduct the investigation.
5. Coupled inquiry: a hybrid that combines a guided-inquiry investigation with an open inquiry investigation.

These types of inquiry can be used by teachers who adopt a cross-curriculum approach to teaching sustainability and work especially well when combined with a thematic approach to planning sustainability. Teaching sustainability in themes can assist teachers in their planning, as teachers can link a central topic under investigation to a selection of
learning area content descriptors or achievement standards. As Taylor et al. (2003, p. 272) stated, ‘a range of age-appropriate learning experiences; and a variety of appropriate class organisations that facilitate individual and group learning’ not only provides students with an opportunity for metacognition or thinking about thinking, but also empowers students with the ownership of their own learning/knowledge.

**Intentionally planning for sustainability**

A recent study by Lasen et al., (2017) showed that the early childhood teachers not only perceived EfS to be relevant to students but intentionally planned sustainability-driven lessons in their teaching practices. As part of their teaching practices, the teachers focused on raising awareness about sustainability by engaging in discussions with students about issues such as recycling and waste management. However, while most referred to this approach as intentional planning, a small percentage of teachers referred to this approach as ‘incidental teaching’, or, what they consider as ‘teachable moments to raise awareness’ (Lasen et al, 2017, p. 401). However, Lasen et al. (2017) found that teachers failed to include essential components in their pedagogical processes; for example, teachers did not involve students in ‘identifying issues, investigating issues, seeking solutions to issues, carrying [out] actions to address issues’ (p. 407). Regardless, this study showed that many teachers willingly and deliberately include sustainability in their teaching practices, despite having identified challenges with curriculum implementation (Lasen et al., 2017).

Intentionally planning to teach sustainability not only assists in making lessons more explicit for students but also helps teachers to develop their own understandings of sustainability as, in the planning process, they become exposed to a range of different sustainability topics, concepts or themes (Barnes et al., 2018; Lummis et al., 2016). Through
the planning of sustainability, links between its three areas (social, economic and environmental) become more apparent, which in turn enables teachers to establish connections between sustainability and other learning areas more clearly (Barnes et al., 2018; Lummis et al. 2016). Whether links are made more explicit in the curriculum or teachers are provided with additional resources and support, intentional planning not only provides an opportunity for teachers to become more familiar with sustainability, but also facilitates the inclusion of sustainability in teaching practices.

This section discussed how teachers can implement sustainability in their teaching practices and how these practices could not only increase teachers’ confidence but also facilitate connections between sustainability and other learning areas (via the adoption of a cross-curriculum approach). Previous research has largely focused on how schools that are known for their sustainability initiatives have implemented the SCCP. The present study, however, sought to include schools that are not necessarily known for their involvement in sustainability initiatives. Additionally, this study also looked at exploring the types of teaching practices (be they inquiry based or intentional) have been adopted by these schools to suit their individual contexts.

**Brief Conclusion: The Connections between the Curriculum, Teachers’ Perceptions of Sustainability and their Practices**

This chapter showed that sustainability is a complex area that requires the development of skills and comprises multiple dimensions. This chapter also considered the value of EfS, the reason it is taught and how it is implemented in an Australian context. Finally, three areas of inquiry were addressed based on relevant research: teachers’ perceptions of sustainability, the inherent complexities of a cross-curriculum approach and
teaching practices related to sustainability. Studies have targeted some of these areas; however, only limited research has examined the interactions between all three areas of inquiry.

Thus, this study sought to investigate whether these three areas influenced the implementation of the SCCP by examining generalist and specialist teachers’ self-reported experiences in primary schools in Western Australia. Rather than only including the experiences of teachers who specialise in sustainability and who are from a particular teaching experience cohort (e.g., pre-service or early years teachers), in this study a different approach was adopted by focusing on the experiences of teachers who have varying years of teaching experiences and who teach different areas of the primary curriculum, either as generalist or specialist teachers.

The literature revealed links between curriculum, teachers’ perceptions of sustainability and/or relevant teaching practices; however, the present research focused on whether and how all three factors affect the manner in which the SCCP is implemented. Understanding teachers’ perceptions of sustainability and whether these perceptions have been or are affected by the curriculum in terms of a cross-curriculum approach and/or specific teaching practices, requires a consideration of teachers’ experiences (Taba, 2000). These experiences can be developed within particular environments, such as schools or classrooms, and include processes that are essentially dynamic. For example, the curriculum can affect teachers’ perceptions of and decisions on how to implement sustainability. Further, the literature suggests that teachers’ perceptions of sustainability and relevant teaching practices also affect one other both in relation to teachers’ perceptions of sustainability and in the implementation of sustainability via the adoption of a cross-curriculum approach.
The next chapter outlines the methodological approach adopted for this study. It also outlines the data collection and analysis techniques and the recruitment strategies adopted by this research and examines the trustworthiness (i.e. reliability) and ethical considerations related to this research.
Chapter 3: Methodology

Introduction

Research question and aim

The aim of this study is to gain an understanding of the implementation of sustainability as a cross-curriculum priority (SCCP) from the perspective of teachers. This involves exploring teachers’ understandings of sustainability, their experiences about how they teach sustainability in their schools and classrooms and the extent to which they use resources, such as the curriculum, in their practice. The methodology for this study addressed the following research question: What influences the way the SCCP is implemented by teachers in Western Australian primary schools?

To answer this question, it is important to consider the individual teaching experiences of teachers. As a result, a key aspect of this study involved asking teachers to describe the implementation of the SCCP in the context of their school and classrooms.

This chapter briefly explains the research design, recruitment strategy and study participants. Data collection procedures and processes involved in the data analysis stage will also be addressed. This chapter will include a discussion about the ethical considerations of this study and conclude with a summary. To ensure the anonymity of participants, participants will be referred to using pseudonyms.
Research Design

Qualitative research

The nature of the research question influences the research design. The purpose of this study was to understand the connection between the three elements of the SCCP:

1. Teachers’ understanding of sustainability
2. Consultation of the Western Australian Curriculum
3. Teaching practices regarding the implementation and integration of the SCCP (Silverman, 2011).

In this study, it was also important to understand the sustainability initiatives and resources used by teachers and schools as they implemented the SCCP.

This research was undertaken using an interpretivist paradigm that acknowledges how reality is actively constructed through the experiences, thoughts and actions of the participants (Smith, 1992). Consistent with this paradigm, a qualitative design with a focus on teacher’s reported experiences of teaching sustainability was adopted.

Structured and semi-structured interviews

Semi-structured interviews were used for this study, as they have the flexibility to ensure that participants are able to discuss their experiences freely (Morris, 2015). As a result, the interview protocol was structured in a way that addressed all research questions, while also ensuring that participants could provide detailed accounts of their teaching experiences. Before interviews began, an interview protocol was developed (Lodico, Spaulding & Voegtle, 2010) and piloted (see section titled ‘pilot study’).
Pilot study

Prior to the main study interviews, a pilot study was conducted with two fellow researchers (who are also registered teachers) who volunteered as participants. One volunteer was a primary Science specialist and the other was teaching at primary level. The pilot study helped the researcher gain experience with the interview process and prepare for interaction with participants (Kim, 2010). It ensured that the questions were appropriate for the interviews and were appropriately worded to answer the research questions. The pilot study also allowed the researcher to gain experience transcribing audio recordings, interpreting interview transcripts and analysing pilot data.

One participant suggested adding follow-up questions to two of the questions. Both participants provided valuable responses to each question. Through this process the researcher gained insights into the types of diverse responses participants could provide and became familiar with data analysis techniques that could be used. Overall, the pilot study confirmed that the research methodology was appropriate to target the study’s research question.

Recruitment

During the recruitment stage, 314 Perth metropolitan government schools were contacted by email and provided with an information letter and principal’s consent form (see Appendices A, B and C). All Perth metropolitan schools were contacted to invite teachers who met the selection criteria (detailed in the next paragraph) to participate in the research. This research was not directed at schools considered sustainability schools or that were part of sustainability initiatives. Out of the schools that were contacted, five schools and nine teachers confirmed participation in this study. All participants differed in teaching
backgrounds, years of experience (10–37 years) and pedagogical experiences in teaching sustainability.

For this study, a purposeful sampling strategy was used in which participants were required to meet the selection criteria of the study to participate (Creswell, 2012). In order to meet the selection criteria (Appendix B) teachers were required to have at least one year of teaching experience as a generalist teacher in Year 5 or 6 or as teacher specialists (health and physical education, Science, music, languages or the Arts). Teachers were not required to be part of their school sustainability club or considered ‘key sustainability staff’ (see Appendix B).

*Generalist teachers*

Year 5 or 6 teachers were selected for this study, because in Years 5 and 6, students are expected to have achieved a minimum standard of all three sustainability dimensions included in the SCCP. By Year 6, students are expected to have been introduced to environmental, social and economic concepts (which reflect the key areas emphasised in sustainability) through different learning areas such as HASS or Science. It was assumed that teachers’ discipline knowledge would vary depending on their educational and teaching experience. As such, it was deemed necessary to recruit teachers with at least one year of teaching experience in Year 5 or 6. In Year 5, economics—an essential aspect of sustainability—is introduced to the curriculum. It was expected that a minimum of one year of teaching experience in Year 5 or 6 would provide teachers with opportunities to incorporate the SCCP into their lesson planning.
**Specialist teachers**

For specialist teachers (i.e., music, physical education, languages and art), the experience of teaching Year 5 or 6 was not necessary, as the potential to incorporate the three sustainability areas (i.e., environmental, social and economic) is not confined to a specific year level. As sustainability is a cross-curriculum priority, it is expected to be implemented throughout all learning areas whenever possible. It was thought that the inclusion of specialist teachers would maximise the learning areas that could be included in this study, broadening understanding of issues relevant to the integration of the sustainability priority.

**Participants**

This section provides a brief overview of each participant. By creating a snapshot of each case, the aim is to illustrate how these educators represented a diverse group of teachers with different levels of teaching experience, understandings and values regarding sustainability.

**Jacqueline**

Jacqueline is a Visual Arts specialist with 23 years of teaching experience. She has taught all year levels (Kindergarten–Year 12) but currently specialises in Visual Arts and Early Childhood education. At the time of the interview, Jacqueline felt strongly about cultural preservation, specifically Aboriginal and Torres Strait Islander languages, histories and cultures. She incorporated sustainability into various aspects of her daily classroom routines and discovered that sustainability can be effectively taught through community
involvement and with the support of parents. At the time of her interview, Jacqueline was employed in a sustainably built school (SBS).

**Alexandra**

Alexandra is a generalist teacher with over 30 years of teaching experience. She was teaching Year 5 at the time of her interview and had recently begun working at her school. She mentioned that she was still becoming familiar with the processes of her school. She felt that she had not had sufficient time to become informed about sustainability teaching practices in her current setting. She enjoyed teaching students about sustainability and found that it could be easily linked to community issues. She believed that the practices in her council could help inform her teaching practices which, in turn, would provide useful learning opportunities for her students. Alexandra’s current school is considered an SBS.

**Mark**

Mark is a generalist teacher with 11 years of teaching experience. Mark was teaching Year 5 at the time of the interview. He enjoys teaching Mathematics and the environment. He has had previous experience teaching physical education. Mark’s school is considered an SBS. He stated that he contributed to building some of the infrastructure used for school sustainability initiatives. Mark has also been part of the school sustainability committee.

**Bethany**

Bethany is both a deputy at her school and the Science specialist. She has over 10 years of teaching experience and has taught at both rural and metropolitan-based schools in

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2 SBS schools were intentionally built using sustainable features and materials. It is important to note that Alexandra, Mark and Maria are from the same SBS.
year levels ranging from pre-primary to Year 6. In one of her previous teaching roles, she taught sustainability as a standalone learning area. She mentioned that her school emphasises sustainability, which she attributed to the school’s proximity to the coast.

Maria

Maria is a generalist teacher with 13 years of teaching experience. At the time of the interview she was teaching Year 5. She stated that she believes that sustainability is an important area for students to study. Her teaching practices and daily routines with students reflected this perspective. Despite this, Maria found it challenging for her school to maintain consistency around the implementation of sustainability due to the increasing workload brought on by other curriculum expectations. At the time of interview, Maria was working at an SBS.

Eva

Eva is a Visual Arts specialist with 10 years of teaching experience. She has taught Year 1 to Year 6 and spoke emphatically about her passion for sustainability and its value to her school and teaching practices. She compared her previous and current school, detailing the supportive environment of her current school regarding the integration of sustainability at both school and classroom levels. She enjoyed integrating sustainability into her teaching, valuing sustainability as way of developing students’ creativity.

Sally

Sally is a Science specialist who has been teaching for 10 years and has taught Year 1 to Year 6. She felt that teaching sustainability can be challenging at times due to the varying
perspectives of her students and their families. Overall, she thought that sustainability is important for students to further understand concepts of Science.

**Tom**

Tom is a generalist teacher with approximately 30 years of teaching experience. He has taught from pre-primary to Year 6 and had spent most of his teaching career at his current school (now in Year 6). Tom felt that sustainability is important for students and that its effective implementation is the result of a supportive administration team. A challenge Tom mentioned was maintaining consistency in sustainability practices at a school level. Some successes with the implantation of the SCCP within his school were that it increased parental involvement in school wide sustainability initiatives as well as students’ opportunities to engage with the community.

**Joe**

Joe is a principal at a primary school. At the time of interview, he had 37 years of teaching experience. He reported being passionate about sustainability and adamant about its integration into classrooms and teaching practices. Joe was previously a Science and Physical Education specialist and former advisor for Primary Connections\(^3\). He is a member of the Australian Association for Environmental Education (AAEE) and is involved with the Australian Council for Educational Leaders (ACEL). Because of Joe’s considerable experience in environmental education, he was an exception to the selection criteria and was accepted for participation in this study, despite not being a classroom teacher at the time of

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\(^3\) *Primary Connections: Linking Science with literacy* is the Australian Academy of Science’s flagship primary school Science program. It is an innovative approach to teaching and learning which aims to enhance primary school teachers’ confidence and competence for teaching Science’ (Primary Connections, 2018).
the interview. Joe expressed interest in participating in this study due to his previous experience studying environmental education.

**Methods of Data Collection**

The participants were asked to take part in an audio-recorded semi-structured interview that lasted between 45 minutes and one hour (see Appendix F). The interviews took place during the first six weeks of Term 1 in 2018. The questions used in the interview protocol were guided by those shown in Figure 3.1.

![Figure 3.1. Themes previously explored in the relevant literature.](image)

Participants were initially asked general lead-in questions intended to establish a rapport, such as, ‘how long have you been teaching?’ and for specialists, ‘what is your area of specialisation?’ The remaining interview questions were structured in three consecutive parts:

1. teacher perception (understanding of sustainability)
2. implementation of sustainability
3. Western Australian Curriculum document and other resources.
Interview questions for generalist and specialist teachers were focused on how they understood and interpreted the concept of sustainability, how they implemented the SCCP in their teaching practices and across learning areas and the extent to which they used curriculum documentation to support their practice.

Although it was necessary to maintain thematic consistency with the interview protocols of classroom teachers, the questions for Joe and Bethany were worded slightly differently, as these participants were school administrators (principal and deputy principal) (see Appendix G). As such, their interview protocols were directed at the experiences of their staff and school initiatives, while also allowing them to express their professional experiences either as a former teacher or in their current roles.

**Methods of Data Analysis**

To analyse the data, a process specific to coding qualitative research was used (Creswell, 2012). This process is based on the visual model of the coding process in qualitative research (Creswell, 2012, p. 244) and consisted of the following steps:

1. reading the transcripts
2. dividing the transcripts into segments and labelling with codes
3. developing codes into themes.

Each of these three steps formed part of an iterative approach in which the researcher revisited the interview transcripts and data analysis to develop a more in-depth understanding the participants’ responses (Creswell, 2012).
**Reading the transcripts**

Once the data were collected in the format of voice recordings, the researcher began the analytical process by transcribing each recording manually and verbatim. When this was completed, a preliminary exploratory analysis was conducted. This consisted of reading the data to obtain a sense of the material (Creswell, 2012).

**Dividing transcripts into segments and labelling with codes**

The data were organised according to interview questions. Text relevant to the study was considered a segment. For example, Joe’s response to the following question ‘what are some teaching practices you have used when integrating the sustainability priority?’ was considered a segment:

Joe: Well, lots of different ways. So, when they’re doing their planning and looking at the English and the Maths and Science and, and in fact our Science teacher does that, works with teachers and brings it back into the classroom as well.

This response contained information relevant to the study and research questions, which would later be highlighted and coded.

According to Creswell (2012), ‘sentences or paragraphs that all relate to a single code are called a text segment’ (p. 244). Within each transcript, parts of the data relevant to the research questions were highlighted and assigned a code. For example, when considering Joe’s response above, the following words, terms or phrases that are in bold were highlighted:

Joe: **Well, lots of different ways.** So, when they’re doing their planning and looking at the English and the Maths and Science and, and in fact our **Science teacher** does that, **works with teachers** and **brings it back into the classroom as well.**
The highlighted word, terms or phrases consisted of anything that appeared unique (commonalities or differences between participants) or relevant to one of the three facets of sustainability targeted in this study. The coding assigned to the highlighted text was transferred to a column titled ‘interesting ideas (codes)’ (see Table 3.1). The term ‘interesting ideas’ was used to denote the tentative nature of the initial labelling process, while reminding the researcher of the importance of remaining open to unfolding ideas or themes. Additionally, the description of the highlighted text usually included the wording of the participant. This was a way to preserve the participant’s original meaning, while minimising the risk of over-interpretation on the part of the researcher.
Table 3.1

*Example of the Data Analysis Process*

<table>
<thead>
<tr>
<th>Demographics/information</th>
<th>What are some teaching practices you have used when integrating the sustainability priority?</th>
<th>Interesting things (codes)</th>
<th>Big ideas (major themes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joe</td>
<td>Well, lots of different ways. So, when they’re doing their planning and looking at the English and the Maths and Science and, in fact our Science teacher does that, works with teachers and brings it back into the classroom as well.</td>
<td>‘Well, lots of different ways’ – lots of different teaching practices</td>
<td>All participants spoke about their ability to integrate the SCCP across learning areas (not just HASS and Science in which sustainability is predominately taught)</td>
</tr>
<tr>
<td>Subject: principal</td>
<td></td>
<td>Participant refers to integration of the SCCP across learning areas ‘English and the Maths and Science’.</td>
<td></td>
</tr>
<tr>
<td>Number of years: 37</td>
<td></td>
<td>Science teacher ‘works with teachers’ and brings it ‘back into the classroom’</td>
<td></td>
</tr>
<tr>
<td>Year level: principal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialist? previous Science/Health and Physical Education specialist teacher</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Former advisor for primary investigations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member of the AAEE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involvement with the ACEL</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Developing codes into themes

Once confident that the most interesting ideas had been identified, big ideas (major themes) were derived from the data. Each code was analysed according to its relevance to the research question. For example, one theme was identified through teachers reported teaching practices (see Table 3.1) when asked: What are some teaching practices you have used when integrating the sustainability priority? Teachers spoke about the integration of sustainability in a wide range of learning areas including Mathematics and the Arts. Thus, teachers were not only able to integrate the SCCP within HASS and Science, in which sustainability is predominately taught, but also in learning areas that are not generally associated to sustainability.

Trustworthiness

Establishing trustworthiness in qualitative research is conducted through four criteria: credibility, transferability, dependability and confirmability (Guba, 1981; Nowell, Norris, White & Moules, 2017; Shenton, 2004). For this study, transferability, dependability, credibility and confirmability were kept in mind when the study was developed, and during data collection and analysis. Each of these four criteria will be discussed in the following section.

Transferability

Transferability refers to ‘the extent to which the findings of one study can be applied to other situations’ (Shenton, 2004, p. 69). If other practitioners (i.e., educators) discover similarities to situations presented in the study, they may find ways to relate the findings to their own context or situation (Shenton, 2004). Earlier in this chapter, in-depth details were
provided regarding the research design, recruitment and participants of this study. However, to provide a summative context of this study, and in an effort to ensure the potential for transferability, a brief overview of the research design will be discussed.

This study included the participation of nine teachers. Out of the nine participants, one was practicing as a principal. The others were either generalist or specialist teachers. Participants varied in terms of their area of specialisation, teaching experience and position held in their school. One participant was both a specialist teacher and a deputy principal.

Participants were asked questions aimed at understanding their perception of sustainability, use of the curriculum and teaching practices regarding the implementation of the SCCP. The interviews were semi-structured and collected throughout Term 1 2018 and lasted between 45 minutes and one hour.

The data were collected from Perth metropolitan schools and consisted of five different schools, one of which was a school that was sustainably built and maintained. As a result, this study included teachers from varying specialist areas and schools within Perth. The potential for this study to be transferred to similar projects in different environments could produce findings of value to this field of study. With this in mind, and as discussed in Chapter 2, similar studies have been conducted in similar contexts across Australia, although not in Perth metropolitan primary schools.

**Dependability**

Throughout the study, data collection and analysis procedures were used to ensure that, if the study were repeated in the same context using the same methods and participants, similar results would be obtained. The data collection and analysis phases were designed to ensure the dependability of this study. For example, the visual model of the coding process in
qualitative research (Creswell, 2012, p. 244) was used as a model so that other studies could conduct the analysis on a similar study with the aim of achieving comparable results. Further, data were collected from participants who were (at the time of their interviews) educators teaching at a primary level in the Perth metropolitan area. These interviews were semi-structured and, through the consultation of relevant literature (discussed in the Research Design section), were considered appropriate for conducting qualitative research in this field of study. Overall, the data collection and analysis procedures were chosen to ensure this study was, not only dependable, but able to be replicated to produce comparable results under similar conditions.

Credibility

Credibility in the data collection phase was ensured in a number of ways. First, participants were given the opportunity to refuse to participate in the interview sessions. As a result, participants who chose to share their experiences were genuinely willing to participate. An effort was made to reassure the participants that this study would not pass judgement or assess perceptions and practices. Participants were given the opportunity to review the transcripts to ensure that they were accurately transcribed. These steps ensured that the responses were genuine reflections of the experiences of the participants (Miles, Huberman & Saldana, 2014; Shenton, 2004).

Second, the data analysis method used to code the data is an example of how this study ensured credibility. Shenton (2004, p. 64) supported the notion that ‘the methods of data analysis, should be derived, where possible, from those that have been successfully utilised in previous comparable projects’. As this study followed the model by Creswell
(2012), it ensured that the data were analysed using a method developed by a well-known qualitative researcher.

Finally, the credibility of this study is reflected in the scientific background of the researcher; academically and in terms of primary teaching experience. The experience and background of the researcher is an important credibility factor in qualitative research (Shenton, 2004). The researcher had to be aware that her personal perceptions could affect the research and exert reflexivity during the research process. As a former Science teacher, the researcher was aware of the possible bias she could bring to the research in terms of established perceptions of sustainability and interpretations of the curriculum and its implementation of the SCCP. Participants may have felt reassured to know that, as a practitioner, the researcher had encountered similar experiences in implementing the SCCP in her teaching practices. Additionally, any past experiences from the researcher (teaching Science and reviewing the curriculum) served as a guide for developing interview questions that were credible and able to be supported by appropriate follow-up questions.

**Confirmability**

Confirmability refers to the degree to which results can be confirmed or corroborated and the consideration of researcher bias in the study (Shenton, 2004). With this in mind, it is important to discuss the limitations of the study as a way of recognising the shortcomings of the research methods and how these may have affected the study.

**Limitations with the Methodology**

The participants who volunteered for this research were teachers who demonstrated an interest in sustainability and who believed sustainability concepts where important for students to learn. Most of these participants included sustainability in their lesson plans and
their daily routines. Further, the responses may be biased, as all teachers, though not having specific leadership roles in terms of sustainability initiatives, were passionate about teaching it. As a result, this research does not necessarily include the perspectives of teachers who did not enjoy teaching sustainability or felt that it was unnecessary to include it as part of the curriculum. However, for the purpose of this study, it was not essential to include participants who held this perspective, but instead to include diverse teaching backgrounds (specialists and generalists), which was achieved.

The researcher (a former specialist Science teacher) also felt strongly about the importance of teaching sustainability and including sustainable practices as part of daily teaching routines. Researcher bias is usually unavoidable, as researchers tend to study topics in which they are interested. To limit researcher bias, the interview questions were designed so that participants would have the opportunity to share their experiences without being led to respond in a particular way. An example of this is evident when participants were asked to share their difficulties and successes with implementing the SCCP. In this way, the participant’s voice—not the researcher’s—was the focal point.

**Ethical Considerations**

This study ensured that the rights of participants were protected throughout all aspects of the research. In doing this, the study adhered to the principles of informed consent, voluntary participation, anonymity and beneficence.

In this study, the inclusion of human rights means that participants and researchers have the right to refuse to answer questions or participate in the study at any time that they feel they are at risk (NHMRC, 2018). Additionally, participants were guaranteed the right of
confidentiality and anonymity and were assured that any data collected would not be divulged to anyone not specified in the information letter.

In addition to approval from Murdoch University Human Research Ethics Committee and the Western Australia Department of Education, permission was also sought from the school principal. Teachers were then individually contacted by email and provided with the information letter and participant’s consent form (see Appendix D and Appendix E). When the consent forms were signed, a date and time for interview was arranged with the teacher. At the beginning of the interview, teachers were asked if they consented to the interview being audio recorded. Though the researcher was prepared to take notes had the participants declined to the audio recording, this was not necessary, as all of them consented to the use of voice recording equipment.

There was the risk of teachers feeling judged or assessed during the interview process. To minimise this risk, the researcher emphasised that the aim of this research was to understand and was not to assess the teacher’s experiences and practice. The participants were assured of the anonymity of their responses and school affiliation. This was integral to minimising risk. Interviews were conducted at the school in a location that was comfortable for the participant; usually in their classrooms. This was also a way for participants to feel safe and to ensure that pressure from colleagues or administrative staff was avoided.

As mentioned, ethics approval was first granted from Murdoch University’s Human Research Ethics Committee, which reflected the requirements of the national standards (NHMRC, 2018). The aim of these standards is to ensure that ‘any research involving human participants complies with relevant standards and with the highest possible ethical integrity’ (Murdoch University, 2018, para. 1). When this was achieved, it was necessary to apply for
approval from the Western Australia Department of Education to conduct research on a school site. Once approved by the Department of Education, it was possible to contact school principals and conduct interviews on school sites. Finally, to fulfil the requirements of Murdoch University and the Department of Education, it was essential to demonstrate that other aspects were being considered, such as consent from participants and minimising all risks to the participants.

Summary

This chapter detailed the significant steps used in the research process. It provided a description of the research design, insight into the recruitment process and the background of each participant. The procedures involved in data collection and analysis were discussed, as were the ethical considerations of this research. The methodology was centred on providing an opportunity for participants to voice their experiences and a forum for them to share their perceptions of the SCCP.
Chapter 4: Findings

Introduction

This study sought to explore what factors influenced the way the SCCP is implemented and integrated by teachers in Western Australian primary schools. Specifically, the study investigated three key issues:

1. teachers’ overall perceptions of sustainability (including their understanding of, and references to, the value of sustainability)
2. teaching practices related to the SCCP
3. teachers’ use of the Western Australian Curriculum when teaching the SCCP.

This study also explored potential connections between the three issues (see Figure 4.1).

Figure 4.1. Three key issues relating to the SCCP and the possibility of connections between them.
This chapter presents the findings of interviews conducted with nine primary school teachers to better understand how the SCCP is implemented and integrated by educators in Western Australian primary schools. Each issue presented in Figure 4.1 will be discussed in this chapter. Although the issues in Figure 4.1 are related to each other, they are not presented in any specific order or hierarchy. The chapter is organised to follow a logical sequence of ideas. Themes relating to the teacher’s perception of sustainability are discussed first, as, from the researchers’ own experience, teachers tend to bring their own perceptions to teaching before exposure to curriculum or prior to making decisions regarding pedagogical practices. Using the same logic, findings related to the use of the curriculum are presented next, followed by teaching practices related to the SCCP. The connections between each of these are discussed throughout the chapter. For each of the three issues presented in Figure 4.1, themes emerging from the qualitative analysis of data are discussed.

**Teachers’ Perceptions of Sustainability**

**Sustainability is important to teachers and students**

Participants stated why they thought sustainability was important to them and why they considered it valuable to their students. Participants said that, for them, sustainability included important themes and concepts that provided valuable life lessons for students and that it was important for these to be included in their teaching practices. For example, Mark not only discussed how the SCCP was important to him but also provided examples of why he thought the SCCP was important for students:

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4 Except when otherwise specified, the term ‘teacher(s)’ will be used when referring to participants of this study.
Students and adults, everyone needs to be, educated as to the importance of it [sustainability] and what it’s all about … how we are sustainable as a society. But how past places or past areas or generations have been sustainable or not been sustainable … and also … looking after yourself, making sure you’re healthy and you’re able to keep on going, not be burning out and things like that.

In reference to ‘making sure you’re healthy and you’re able to keep on going’, Mark described how sustainability is important not only from the perspective of considering future generations, but also a social sustainability standpoint. This indicates that, to Mark, sustainability is not only about environmental and economic issues but is also valuable for the wellbeing of students (i.e., social sustainability).

Joe described that teachers could be role models for students. Joe stated that if teachers modelled certain behaviours or habits associated with sustainability, students would be more likely to mimic those behaviours. The experiences expressed by Joe and Mark suggest that the SCCP is not only important to them as individuals, but instrumental for students as it provides them with valuable lessons for living sustainably. For example, Joe spoke about his interest in sustainability and how his interest affects students:

It’s one [sustainability] that’s always been an interest area of mine as well as has Science as well. And I think it’s just about life, and it’s about the principles you have in life and like any teacher I think that that’s what you want to bring to your kids. And if you’re interested in it, then the kids will be interested in it as well. So, for me, I’ve always been, had an environmental awareness and sense of importance around that.

Similarly, one of the Science specialists, Sally, spoke about how her interest in areas of sustainability, such as water resources use, is of personal interest to her and her students:
But then it’s also really important to then link that into sustainable use of water and not wasting it and that kind of thing. I think it’s very important from a personal perspective as well. But the kids understand … because it’s their future as well to live in this world.

Similar to Joe and Sally, but not as personal, Mark explicitly described the teacher’s role in modelling sustainable behaviour for students:

I think the concept of just general sustainability, sustainable living and stuff, should be taught. It’s really, really important to be taught, incorporated. Students feed off what teachers do and what teachers model. So, we model recycling … We pick up a bit of rubbish in the playground. They’re more likely to pick it up. We pack appropriate lunches; they’re going to feed off that.

Overall, participants in this study found value in teaching sustainability to students. Not only did their experiences provide insight into why each participant thought it was important for the SCCP to be included in their teaching practices, they also provided explicit examples of how the SCCP was relevant to students. Although these experiences were based on individual perceptions, their experiences provided genuine reasons for the importance of sustainability to teachers and the value of teaching the SCCP to students.

**Teachers have diverse perceptions of sustainability**

Not only did teachers describe the value of teaching sustainability, but their perceptions of sustainability also included a diverse and multidimensional understanding of social, environmental and economic concepts. When participants were asked ‘what words, terms or concepts do you understand to be relevant to sustainability?’ their responses represented a multidimensional understanding of this construct. Figure 4.2 illustrates this
point by representing how teachers’ responses aligned with the three dimensions of sustainability argued in Chapter 2 (i.e., social, economic and environmental). As previously mentioned, each dot in the diagram represents a word, term or concept that was discussed by one of the participants. It was coded as either ‘economic’, ‘social’, ‘environmental’ or ‘school-based’ (‘school-based’ is not in Figure 4.2). For example, if a participant said that recycling was relevant to sustainability, it was coded as environmental and a dot (in which each colour represents a participant) was placed on the environmental dimension of Figure 4.2. However, if a participant referred to a term relevant to all three dimensions (e.g., ‘innovation/ideas’) a dot was placed in the centre of diagram at the intersection of the three circles.

![Figure 4.2. Participants’ diverse perceptions of sustainability.](image)

As shown in Figure 4.2, responses were mainly categorised as corresponding to the social or environmental dimensions of sustainability. For example, Mark (in yellow) spoke about how sustainability includes learning about becoming ‘global citizens’ and about ‘global...
warming’ or ‘climate change’. However, participants also mentioned words, terms or concepts categorised as economic drivers. For example, Jacqueline, Eva, Maria, Alexandra and Bethany mentioned terms such as ‘economic’, ‘renewable or non-renewable resources’ and ‘human resources’. Maria, Sally and Eva provided responses that reflected all three dimensions (as shown in the middle of Figure 4.2) such as ‘innovation/ideas’, ‘ongoing’ and ‘integrated into all areas of learning/life’. Except for one participant, responses did not differ between specialist teachers and generalist teachers or teachers with different years of experience.

Tom was the only participant to associate sustainability with a different view. Tom’s responses reflected perceptions of sustainability based on his school context with terms that included ‘resources’, ‘support’ and ‘children’. When asked, ‘why did you choose these words, terms or concepts?’ Tom responded that ‘none of this [school sustainability initiatives] can work without the administration [leadership team] being onboard and providing us with support and time and opportunities to send us to professional development’.

Curriculum

The following section refers to the curriculum. The findings indicate that:

- Teachers reported finding different kinds of support (in addition to the curriculum) to guide their teaching of the SCCP.
- The curriculum is consulted throughout different planning stages.
- The integration of the SCCP is occurring across learning areas.
- Teachers may not require prescriptive resources for planning the SCCP.
- Teachers advised that the SCCP should not be formally assessed.
The interview data indicate that participants find different forms of support and resources for the implementation and integration of the SCCP. Although teachers have been referring to the Western Australian Curriculum throughout their planning phases, the data suggest that participants have also been able to find other relevant support or resources. When asked the question, ‘on the basis of your experiences, what do you think is the support teachers have when integrating the sustainability priority?’ participants mentioned access to various forms of support, including teacher networking, access to professional development and internal school staff support. Examples can be found in the accounts of Joe, Jacqueline, Tom, Eva, Bethany, Sally and Mark. When referring to resources, Joe stated, ‘oh yeah, there’s heaps. You know, you’ve got the Guild League, you’ve got programs and activities and things that you can do before, during a visit, then after’. Similarly, Jacqueline shared that ‘there’s quite a wealth of information, not just a person to go to, there are go-to resources on our share drive’. Tom stated, ‘I think they [learning area specialists] are really valuable, they’re really important and you can’t run a program without people who can do certain things’. Their responses suggest that these participants have found both resources and support relevant to their teaching practices, which may be indicative of experiences of other teachers primary teachers.

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5 For the purpose of this, study the term ‘resource(s)’ will be used when referring to materials (including the Western Australian Curriculum and any other non-mandated supporting documents) and funding provided to, or accessible by, teachers. ‘Support’ will refer to assistance provided by others (e.g., school staff and leadership teams, teacher networking, teacher or professional development and professional learning).
Participants also spoke about different kinds of support relevant to specific learning areas. For example, Eva referred to a network of teachers who specialised in art, ‘the network of art teachers. ‘Often we share projects and ideas and that’s through the art education of WA’. Conversely, Bethany used resources relevant to her Science learning area, ‘going back to Science again here because this is my area … the Sustainable Schools sort of online Connect network is great as well’.

In terms of resources, Mark, a generalist teacher, searched for resources relevant to learning areas such as HASS.

Within HASS … we’re a Teacher Development School for HASS, so we have someone on staff that gets a day a week where they focus on that. And so, they’ve been able to feed some information to us around, around those cross-curriculum priorities.

When teaching other learning areas, Mark is guided by his interest in sustainability as well as his schools’ priorities, ‘Within other areas, it’s just, I guess my enthusiasm in the school’s priority of sustainability’. Bethany was also able to find additional resources, but these were based on the Science learning area she was teaching (i.e., Primary Connections). Her resources were relevant to what she was required to teach within the Science curriculum. Overall, participants found support for their practices beyond the curriculum. Their efforts involved actively interacting and collaborating with others within and outside their schools.

**Curriculum is consulted by teachers throughout planning stages**

Although teachers look for different kinds of support and resources, most participants mentioned that the Western Australian Curriculum was the first resource consulted when planning their teaching. When asked the question: ‘What resources have you found useful in
your practice when implementing the sustainability priority? How have they been useful?’

Jacqueline responded by saying:

I look at the pointers and I’ll look at what the descriptors are for each year band and then I’ll program from there basically, I’ll have a skeleton idea based on, if I’m at a new school, I’ll make it context related to that school ... Yeah, there’s a whole band of information that goes in [to planning] but primarily if I’m meeting SCSA requirements, I’ve gotta tick those boxes for my reporting and assessing.

In the above response, Jacqueline mentions that she must ensure that she is ‘meeting SCSA requirements’. This is logical, as the Western Australian Curriculum is a mandated document for teachers. For Jacqueline, meeting SCSA requirements is important for her teaching. This, along with ensuring that she is covering all aspects of her assessing and reporting, is her primary concern.

Similarly, Alexandra refers to the SCSA website as ‘very useful’ and ‘a really good starting point’.

The SCSA website’s very useful. So that’s got resources which are a really good starting point … but always, like I start with the syllabus … Ok so, this is what I have to cover that says, should be C level, this is what I need to do. So, then I looked for resources that go with that. So, I might start with the SCSA website, then I’ll go to other places that fit and that’s how I sort of sort through the information … Yeah, it’s definitely the curriculum is the focus.

Alexandra, a generalist teacher, goes on to say that she likes to ‘start with the syllabus’ and then finds resources that align with what she has to teach. Other participants were not explicit about the stage at which they consult curriculum documents but indicated that they did so at
some stage in their SCCP planning. For example, Maria stated that she consults ‘the curriculum documents in regards to the sustainability priority, as well as the supporting documents provided through the SCSA website’. She also stated that, after consulting the SCSA website, she would discuss the priority with other teachers in her school to ‘discuss how we can integrate into our programs across the learning areas’ before selecting ‘specific areas of sustainability to suit particular learning areas and activities’.

Some participants (in particular, Mark) were more specific and described the learning areas (such as HASS and Science) that they initially consult in the Western Australian Curriculum to draw links to the SCCP. Examples of this can be observed when Mark says, ‘within the HASS curriculum we would draw out specific things and highlight them as sustainable or sustainability’. Bethany described using a secondary resource for her planning but noted that she still relied on the Western Australian Curriculum’s Science elaborations to link SCCP to her Science planning; ‘you can’t purely rely on doing Primary Connections for a term and that’s going to cover everything. But they’ve [teachers] certainly, in their programs, drawn out a lot of the elaborations and included the sustainability focuses, in those areas’.

The experiences described by the participants indicate that the Western Australian Curriculum is consulted throughout various stages of teacher planning. Although most of the consulting is conducted during the initial planning, some participants (generalists and specialists) indicated that they consult the Western Australian Curriculum for SCCP at later stages or as a supplementary resource. However, when participants were asked about the resources they consult, use of the curriculum as a resource for planning was the most prevalent response. These findings demonstrate that, in addition to using other resources and
forms of support including professional networks and individually sought resources, the curriculum is consulted to implement the SCCP.

**Integration of the SCCP is occurring across learning areas**

Teachers were able to integrate the SCCP across different learning areas. This is logical, as the curriculum was consulted by teachers throughout different stages of their planning. When asked, ‘what are some of the teaching practices you have used when integrating the sustainability priority?’ all participants described the diverse ways they were integrating the SCCP across learning areas such as HASS, Science, the Arts, English and Mathematics. By means of incidental and/or intentional teaching, generalist and specialist teachers were implementing the SCCP in ways that reflected a cross-curricular approach.

Joe, Jacqueline, Alexandra, Mark and Maria spoke about their experiences integrating the SCCP across learning areas. For example, Joe stated that he used, ‘lots of different ways … looking at the English and the Maths and Science and, and in fact our Science teacher does that, works with teachers and brings it back into the classroom as well’. Jacqueline, in turn, spoke about the strategies she uses in her Visual Arts classes, such as visual thinking strategies to create an ‘in the moment discussion point’ that is relevant to her students:

I might use a visual thinking strategy, or I might show a picture. I got a great picture ... It’s a photograph of a child lifting up a wave. And underneath the wave is all this refuse, plastic … I’ll just show the image, or I might just have it up in the classroom and they’ve walked by ... I haven’t said anything about it. And then I might bring into the discussion, what do you see? What makes you say that? What more can we see? … They’re bringing to it their prior knowledge. And then I can value add on top of
that and we can find out more together and it’s a good in the moment discussion point that’s relevant to them.

Two Science specialists (Bethany and Sally) described their experiences integrating the SCCP into the Science curriculum. Sally spoke about incidentally including the SCCP into her teaching; ‘I suppose it’s like I’m teaching whatever is the Science and then if something fits in with it [sustainability], then it works’. Sally refers to integrating the SCCP whenever it ‘fits in with’ Science. Bethany spoke about her experiences integrating the SCCP into the Science and Digital Technologies curriculum:

So, for instance, integrating it [SCCP] with Design and Technology and saying, right, create a solar house … that’s one of the activities that the Year 6s do. They look at all the different aspects of … not just solar panels but also, a sustainable house. So, harvesting rainwater, which way it’s facing and things like that. So, it’s more STEM based than just Science.

In this quotation, Bethany describes how she integrates the SCCP with the design and technology curriculum, in addition to Science. She also mentions that this integration is STEM based, which indicates her association of sustainability with STEM-related concepts, instead of solely relying on the integration of sustainability with curriculum-based learning areas. Similarly, Mark described how he found the SCCP explicit within HASS, ‘a part of the HASS skills or the HASS concepts is looking at the environment and things like that … So, I think that a really explicit focus within HASS on it [SCCP]’. Focusing on a different curriculum area, Alexandra linked the SCCP to numeracy and Mathematics-related concepts; ‘I’ve taken children out to count pollution … how many cars go past, how many bikes have gone past. Looking at graphing, who walks to school, who rides to school, that sort of thing’.
Bethany, Mark and Alexandra described experiences in which they have integrated the SCCP into different learning areas.

Some participants mentioned that they would teach sustainability when they identified possible links to the SCCP within the learning areas. Although Mark indicated that it is not only incidental (i.e., teaching it when it naturally arises when teaching other learning areas), but also ‘unintentional’, which means not deliberate or planned:

The biggest challenge is always time and the ability to know how to actually integrate it. And also, to realise you are [teaching sustainability] but not even be conscious that you’re doing it. So, you might look [at the SCCP] and go, I am actually doing that … A lot of it is incidental things because I think it’s important.

Maria referred to teaching the SCCP as ‘incidental teaching’ throughout her generalist teaching:

I think incidentally we have a lot of programs in place that make it easy to talk about it [sustainability] regularly as well as having specific lessons, whether it’d be part of a HASS program or health program … as far as the explicit teaching of those concepts.

Similarly, Eva (a Visual Arts specialist) said that she would refer to sustainability throughout her teaching, as it was part of the school values program, although not always explicit:

I’m always referencing [the school values program] because we’ve got this values program at the school, and one of the five being that conservation one I’m always referencing … In a … maybe not explicit manner because, I guess my priorities, the creative thinking … But it’s kind of always just sitting underneath the surface of what we’re doing.
These data suggest that, regardless of whether participants are incidentally or explicitly teaching SCCP, they are implementing the SCCP as intended by the Western Australian Curriculum; that is, as a cross-curriculum priority.

**Teachers may not require prescriptive resources or support for planning the SCCP**

The findings in this section indicate that providing teachers with a set of mandated resources may not be necessary, considering they are able to find their own kinds of support and resources. When teachers were asked ‘on the basis of your experiences, what do you think are the support teachers have when integrating the sustainability priority?’, all participants talked about how they have been successful in implementing the SCCP in their own teaching. Although the question was directed at the teachers’ support, participants also spoke about resources.

Responses to this question differed in the descriptions of the need for structured guidance and resources, as opposed to less structured support. Although some participants said they did not require any additional mandated support aside from the Western Australian Curriculum, one participant said that some guidance for the assessment of the SCCP would be helpful.

In general, participants were confident that they could integrate the SCCP based on the support and resources available to them. This indicates that further prescriptive support (i.e., learning areas in the curriculum focused on sustainability or a mandated set of resources) may not be essential for all teachers. For example, Alexandra mentioned that, in her experience:
I found that I can cover the topic. It’s not one that I’ve gone oh my goodness, that’s something that I need a hand with. So, when I do cover it, it’s one that I find I don’t need that additional support.

Additionally, two participants mentioned that providing teachers with additional resources could be detrimental to their implementation of the SCCP. Joe thought that the amount of resources that already exists can be overwhelming. He said that ‘there’s quite a broad range and maybe that’s a problem too in that there’s so much that it becomes overwhelming’.

Bethany, in turn, spoke specifically about the limitations of prescriptive resources:

If there was an actual sort of set resources it would tie people down a bit more because it’s such a huge scope in teaching sustainability, you can’t really sort of tie it down and say, right, this is how you need to teach it.

These responses suggest that participants are implementing the SCCP and, as a result, do not require prescriptive resources or support dictating how the SCCP should be implemented. Although there was some consistency in the views, this was not unanimous. For example, Maria spoke about how more support would be appreciated for particular aspects, such as assessing the knowledge and understanding gained by students (although assessing the SCCP is currently not required). She said, ‘I think teachers could use more support, particularly in regards to assessing the understanding of the students in regards to sustainability’. Maria’s view is understandable, considering that, as the SCCP is not required to be assessed or reported, there are no mandated resources available (i.e., provided by the SCSA) for teachers wanting to take the extra step in their practice. As such, Maria’s view represents an important finding; that is, although assessment is not mandatory, teachers may benefit from guidance
about how to assess students’ knowledge or understanding of sustainability concepts and skills.

Overall, additional resources or support for the implementation of the SCCP was not deemed necessary by most teachers. However, one participant described how support for assessing the SCCP would be beneficial for her practice. This brings the discussion to the teachers’ accounts of the assessment of the SCCP.

**Should the SCCP be formally assessed?**

In addition to the finding that teachers do not require prescriptive resources, they also advised that the SCCP should not be formally assessed. It is not currently intended that the SCCP be formally assessed by teachers; there are no mandated guidelines for this. This means that teachers in Australia are not required to conduct any form of diagnostic, formative or summative assessment or reporting of any of the cross-curriculum priorities including sustainability.

The way that participants responded to the question ‘what are your thoughts about assessing the sustainability priority?’ indicated that teachers have been assessing sustainability in some form through other learning areas, such as Science or HASS, not on its own. Although Tom stated that he is always assessing, he also advised that assessment was in addition to the implementation and teaching of sustainability initiatives in his school:

I’m always assessing anyway, so everything I do … I know what we’re doing well, I know what we’re doing not well, but that’s not good enough if we have to report it to somebody who’s given me the money to fund something. So, it is necessary because you need to be able to back up your project with facts … it’s a job that is second to
the kids and to the actual real-life plants and chickens, and things that we’ve got already.

Tom assesses both formally (for funding purposes) and informally in everything he does. He stated that assessment is necessary for supporting projects through the acquisition of funding. He also stated that assessment is ‘second’ to his students and he does not refer to formal assessment regarding the curriculum. From a different angle, Sally stated that formally assessing the SCCP:

Would depend if it [SCCP] was going to be assessed under a particular learning area or if it then becomes another thing on its own … it’s a very crowded curriculum to then put something else in to assess. So, I guess that would make it a bit difficult.

Similarly, Bethany, who had only taught sustainability for six months at the time of the study, found that the problem with formally assessing sustainability was what to assess and how. She said that ‘the problem with assessing it is, are you assessing the children’s knowledge of it or the process that they’re doing?’ With this in mind, formally assessing sustainability not only has the potential to add to an already ‘overcrowded’ curriculum but would also require clarification on what and how it could be effectively assessed.

Other participants, such as Joe, mentioned that teachers at his school assess the SCCP when it is integrated with other learning areas. However, he mentioned that assessing sustainability on its own would demotivate teachers and students. He said that ‘as soon as you start to do that [assess sustainability formally] you start to turn people [teachers and students] off’. This view was supported by Eva who said that formally assessing sustainability (i.e., assigning a grade) ‘sounds scary’. She elaborated, saying:
It makes me feel worried to think if we would assess sustainability then we’re giving like this external reward for something that they should be taught and should be fun and should become part of your life rather than something that you are assessed on … to put a grade on that might just not, might actually have the opposing effect and make students not be motivated to do it. It’s another thing that they’re marked on or tested on.

Contrarily, Maria’s view about requiring support when assessing sustainability (see the section titled ‘teachers may not require prescriptive resources or support for planning the SCCP’) may only be advantageous to teachers seeking to take the additional step in assessing the SCCP, as they are interested in understanding the students’ mastery of skills and concepts relating to sustainability. This scenario would not necessarily apply to all teachers. Most participants mentioned that sustainability, on its own, should not be formally assessed for various reasons, including the risk of demotivating students and teachers, adding additional assessment requirements (which may pose challenges to teachers) and due to the complexities of assessing the SCCP given its inbuilt connections between knowledge and skills.

The findings presented in the theme of curriculum indicate that teachers source different kinds of support in addition to the curriculum. This is understandable, as the previous section referred to the value they attribute to sustainability and their diverse level of understanding. Further, although teachers search for different kinds of support, they continue to consult the curriculum throughout their planning phases and integrate the SCCP across different learning areas. The teachers advised that a set of mandated resources or support may not be necessary. This was similar regarding assessing the SCCP, in which all but one teacher described the disadvantages of formally assessing sustainability.
**Teaching practices**

The concluding section of this chapter refers to findings which reflect influential factors that contribute to the implementation of the SCCP within teaching practices, according to teachers’ reported experiences. The findings indicate that:

- School leadership and staff support are important for the implementation of the SCCP, especially for teachers who consider sustainability relevant to them or their school.
- Implementation of the SCCP is driven by teachers.
- The Sustainability content that teachers report teaching does not reflect the diversity evidenced in teachers’ understanding of sustainability.

**School leadership and staff support are important for implementing the SCCP**

The teachers advised that an important aspect of implementing school sustainability initiatives was the support of staff and the school leadership team. With this in mind, one commonality among four of the participants was that their school was built sustainably. This means that sustainable requirements were integrated into the school building, such as efficient heating and cooling, louvered windows, aquaponics and hydroponics and the use of underground water. Jacqueline, Alexandra, Mark and Maria are from the same school (SBS). When asked the question ‘can you tell me about some of the key sustainability initiatives at your school?’ they listed between two and six different school initiatives, with only one participant (Maria) reporting six (see Table 4.1). These data are similar to the remaining five participants from non-SBS who also reported between three and five school initiatives related to sustainability. As such, participants from non-SBS shared a similar amount of sustainability initiatives at their school as those from an SBS.
The sustainability initiatives included programs focused on resource use such as water, energy and waste. These initiatives were not only implemented across the school, but also in individual classrooms. An example of a whole school initiative was the gardening program. All teachers mentioned gardening clubs or programs such as the Stephanie Alexander Kitchen Garden program ("Stephanie Alexander", n.d.). Conversely, at a classroom level, seven teachers mentioned recycling or re-using classroom items such as paper or batteries or collecting food scraps for composting or worm farms.

Table 4.1

School Sustainability Initiatives at SBS and Non-SBS Schools

<table>
<thead>
<tr>
<th></th>
<th>Joe</th>
<th>Jacqueline</th>
<th>Alexandra</th>
<th>Mark</th>
<th>Bethany</th>
<th>Maria</th>
<th>Eva</th>
<th>Sally</th>
<th>Tom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste programs</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy programs</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School sustainability values/philosophy</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
<td>Y</td>
<td>X</td>
<td>Y</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Animals on school grounds</td>
<td>Y</td>
<td>Y</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water programs</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gardening programs/club</td>
<td>X</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>X</td>
<td>Y</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sustainability manager/team (staff)</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
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<tr>
<td>Nature playground</td>
<td></td>
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<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recycling/re-using</td>
<td>X</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Note. X indicates that the teacher is from a non-SBS. Y indicates that the teacher is from an SBS.
One reason for this similarity could be based on the level of school support received by the participants. Participants from both non-SBS and SBS reported dedicated support from their leadership team or school staff throughout the implementation of these school wide initiatives. Examples of this can be found in Eva’s response (Eva is from a non-SBS):

I think it’s really important they have the support of a whole school and a like-minded kind of culture of staff. So I think … it often gets set from the top in terms of our administration, so our principals, deputy principals and then it’s, it filters down and you definitely need a staff that are really supportive of each other and also supportive of the programs.

Tom (from a non-SBS) referred to the level of support at his school and the importance of having a strong leadership team. He said that ‘none of this [implementation of sustainability initiatives within the school] can work without the administration being onboard and providing us with support and time and opportunities to sending us professional development’. Eva and Tom spoke of the value of having a supportive leadership team when it comes to the implementation and integration of the SCCP and other whole school programs. Both participants referred to the importance of supportive staff when implementing whole school initiatives or even social events. Further, Joe referred to his role as a school leader for motivating his staff:

But again, you’ve got to go through that process of reinvigorating people and getting them enthused because for teachers in the classroom it is extra work and they don’t always see the benefits and how they can integrate that through. So, I’ve got to redo all of that. It’s kind of like going forward and going back, going forward, going back.
Similar to Tom and Eva, Joe discussed the importance of the school leadership team for motivating teachers. These data indicate that a strong leadership team can be more valuable to teachers than simply teaching at an SBS. Participants from non-SBS spoke about the importance of a strong school leadership team to support whole school sustainability initiatives. Overall, detailed experiences from participants at non-SBS suggest that participation from the leadership team and school staff is required for the implementation, and continuity, of whole school sustainability initiatives.

**The implementation of the SCCP is driven by teachers**

Although school leadership and supportive staff are necessary, teachers are the drivers of implementation of the SCCP, especially those who consider sustainability relevant to them or their school. Further, all teachers who participated in this study and expressed their passion for sustainability found that the SCCP was professionally and personally relevant to them.

When asked ‘how relevant do you feel the SCCP is within your teaching practices and why?’ participant accounts indicated that the integration of the SCCP is driven by them with a personal interest in including the program. For example, Maria believed that sustainability was not only relevant but also integral to what she did on a daily basis in her teaching practices. She said: ‘I think it is extremely relevant … and I’m pretty sure a lot of teachers would be the same here, that it’s becoming just a part of what you do … just in classroom practices’. Similarly, Tom stated that sustainability is ‘very relevant. So, every activity we do, we always consider the environment’. These participants spoke about how they thought that sustainability was not only relevant to them but also to their daily teaching practices.

Bethany referred to the way sustainability was relevant to her school context. It was ‘incredibly relevant … particularly with our location being by the ocean here. So last year
for Science Week our theme we had was sustainable fishing’. Her experience describes the relevance of sustainability to the location of her school. Working at a school in close proximity to the coast provided opportunities for her to implement sustainability within her teaching and at a whole-school level. These data suggest that teachers may draw on the context of their school for implementing and integrating the SCCP.

Joe mentioned that the integration of sustainability is driven by teachers who show a passion for it; ‘it [sustainability] falls back to the passionate people, the people who can have a bit more vision about how they can integrate it and develop it through the school’. Joe stated that those who are passionate about sustainability in particular, have the capacity to integrate and develop it throughout the school. Similarly, Sally mentioned that a teacher’s interest in sustainability may dictate the way the SCCP is taught:

Being a Science teacher or also having a personal interest or awareness of sustainability and how my thoughts of how important it is compared to maybe another teacher who personally doesn’t think it’s very important—or it’s not—could impact how it’s taught as well.

Joe and Sally spoke about how teachers must have an interest or passion in sustainability to be able to teach the SCCP and integrate it within their practices and implement it in a whole school approach.

Participants were keen to describe the ways they integrate the SCCP across learning areas and in their practice. For example, Tom stated that the environment should be respected, ‘so we’re constantly talking about the respect for the environment .... So, I would say it’s in everything I do’. Joe specifically referred to his excitement about having the
opportunity to take students on excursions to Rottnest Island to learn firsthand about sustainability:

We ran the school at Rottnest, which was very exciting for me! … there were 14 kids and a teacher and the sustainability stuff that we could do out there because the whole place … well, it’s a park … and they have an environmental centre.

Finally, Maria structured her classroom practices around saving paper and limiting the documents she laminated as a way of reducing plastic waste, ‘as far as the use of paper … I’m like the teacher in the school that hates laminating, I think was a huge, huge, huge waste of time and again that adding to the environmental issues that we’ve got’.

The ways in which these participants implemented the SCCP in their teaching practices depended on the context of their school and their perceptions of sustainability. These participants perceived sustainability as relevant to them, either personally and/or professionally. This finding indicates that teachers are motivated by their perceptions of sustainability. This may be an important driver in implementing the SCCP.

**Reported sustainability content taught does not necessarily reflect the breadth of teachers’ understanding of sustainability**

Despite the themes that emerged, reported teaching practices did not reflect the breadth of teachers’ understanding of sustainability. Reported sustainability content included in teachers’ practices was not as diverse, despite data suggesting that participants were integrating the SCCP throughout various learning areas. When participants were asked to share their understanding of sustainability (as presented at the beginning of the interview), their responses incorporated all three dimensions of sustainability (see Figure 4.2). However, when asked for examples of their teaching practices and how these were used when
integrating the SCCP, they mainly referred to practices based on the environmental dimension of sustainability (see Figure 4.3).

Figure 4.3 shows how the sustainability content that teachers mentioned as examples of their practice was more focused on the environmental dimension of sustainability. Figure 4.3 contrasts with Figure 4.2 illustrating that, although teachers’ understanding of sustainability is multidimensional, the sustainability content they focused on in the interview did not reflect a multidimensional approach. The dimension with the least focus is the social dimension of sustainability. Though caution is required when interpreted this data, teachers’ readiness to mention examples mainly connected to the environmental dimension may indicate that the other two are less explicit in the curriculum or more difficult to implement in practices.

![Figure 4.3. Sustainability content covered by each participant and their relevance to the three dimensions of sustainability.](image-url)
Although Maria and Jacqueline included sustainability content throughout their teaching practices that incorporated more than one dimension, most practices reported by teachers were driven by environmental issues such as recycling, tree planting and natural resource use. This is represented by a dot in the environmental dimension. These data show that Tom was the only participant to include the social dimension in his account of teaching practices by teaching Aboriginal and Torres Strait Islander education. For example, he mentioned: ‘we’ve got Indigenous people coming in to talk about respect for the land and Aboriginal culture’. Although this is an example of a teaching practice reflecting the Aboriginal and Torres Strait Islander CCP, sustaining land and culture also reflects environmental and social sustainability.

Bethany, Alexandra and Mark were the only participants to include the economic aspect of sustainability in their teaching. An example of an activity Bethany did with her class was to ‘look at different aspects of … not just solar panels but also, a sustainable house. So, harvesting rainwater, which way it’s [the house] is facing and things like that’. Alexandra reflected on her teaching practice, which included looking ‘at how the government looks at sustainability’. Mark integrated an economic perspective in his teaching by ‘looking at where energy sources comes from … so having a look at renewable and non-renewable sources’.

Overall, the findings in this section indicate that teachers require supporting staff and school leadership to facilitate the implementation of school sustainability initiatives. Despite this, teachers are the drivers for implementing the SCCP, especially teachers who consider sustainability relevant to them or their school. Teaching practices reported by participants do not reflect teachers’ diverse understanding of sustainability.
Summary

This chapter began by discussing participants’ understanding of sustainability as multidimensional, spanning across all three dimensions of sustainability. Participants described the importance of including SCCP in their teaching and how the SCCP provided students with valuable learning opportunities.

Although teachers use other resources, the curriculum is one of the primary resources consulted. Participants provided examples of how they were integrating the SCCP throughout various curriculum learning areas and putting this into practice. Participants indicated that the SCCP should not be formally assessed on its own and that any additional prescriptive resources regarding the implementation and integration of the SCCP may not be required—or wanted—by teachers.

Participant accounts indicated that the implementation of the SCCP as part of teaching practices is not necessarily limited to schools known for being sustainable. Data suggested that implementation of whole school SCCP initiatives tend to occur in schools that have a strong leadership team and supportive teaching staff. Additionally, although teachers were able to integrate the SCCP in their practice, this was influenced by the way they professionally and personally viewed sustainability. Finally, although participants’ understanding of sustainability was diverse and multidimensional, this was not reflected in the teaching practices discussed during their interviews. Instead, teachers mostly used the environmental dimension to exemplify their practice.

This chapter presented the findings relevant to the research question. Figure 4.4 is an updated version of Figure 4.1 and reflects the findings presented in this chapter.
Figure 4.4. Updated version of Figure 4.1 based on the findings in Chapter 4.

Figure 4.4 describes each theme discussed in this chapter and its connection to the different aspects of the SCCP relevant to the research question. Figure 4.4 includes teacher perception, teaching practices and curriculum without portraying them hierarchically. Each aspect contributes to the implementation of the SCCP through its set of influences. For example, teacher perception of the SCCP is influenced by:

1. the value of the SCCP (for teachers and students) and its influence on the inclusion of sustainability within teaching practices
2. the diverse understanding of sustainability among teachers
3. the ability of teachers to find different kinds of relevant support/resources for teaching the SCCP.

As such, Figure 4.4 provides an overview of the themes that emerged from the data and their connections to teacher perception, curriculum and teaching practice.
Chapter 5: Discussion

Introduction

The aim of this study was to understand how sustainability is being implemented as a cross-curriculum priority (i.e., the SCCP) from the perspective of teachers and identify which factors are contributing to its implementation. The study explored teachers’ perceptions of sustainability, their experiences about how they teach sustainability and the extent they consult the curriculum when integrating the SCCP with other learning areas. Thus, this study sought to answer the following research question: What factors influence the way in which the SCCP is implemented by teachers in Western Australian primary schools?

The findings of this study showed that educators are of the view that the implementation of the SCCP is affected by various factors and revealed the connections among teachers’ perceptions, the curriculum and teaching practices. This chapter considers these connections in relation to the literature. First, the participant teachers reported that they had integrated the SCCP across learning areas (i.e., the connection between curriculum and teaching practices is discussed). Second, the consultation of the curriculum in teachers’ planning and the reported initiative to find additional support/resources relevant to teachers’ understanding of sustainability are addressed (i.e., the connection between curriculum and teachers’ perceptions is considered). Third, teachers’ perceptions of sustainability and their reported practices are discussed (i.e., the connection between teachers’ perceptions and teaching practices is discussed). Fourth, the implications of the findings are considered. Fifth, the limitations of the study and areas for future research are discussed. Finally, this chapter concludes by setting out the researchers’ final thoughts in relation to her learning journey and a brief conclusion is provided.
Teachers are Integrating the SCCP across Learning Areas

A key finding of the present study was that all the teachers who were interviewed reported that they were integrating the SCCP across learning areas. When considering the current version of the Western Australian Curriculum (version 8.1.), these teachers reported that they were integrating the SCCP across learning areas. These findings differ to those of Kuzich et al. (2015), who found that teachers who are unfamiliar with EfS found it difficult to identify sustainability links across all learning areas in the curriculum. Indeed, in the present study, the teachers provided varied examples of such integration. Findings of other recent studies have shown that teachers view sustainability as an area that is not easily integrated into an ‘already overcrowded curriculum’ (Evans et al., 2012; Nicholls & Thorne, 2017). However, the participants in the present study reported that they had integrated the SCCP with learning areas, such as HASS, Science and even Mathematics, which is not always associated with the SCCP. Some particularly innovative examples of practices in areas not previously reported in the literature include having students graph the different modes of transportation they use to commute to school and discuss these when considering the concept of environmental pollution (Mathematics) and building a model of a sustainable house (Science/STEM\(^6/) Design and Technologies).

Another illustration of teachers’ integration of the SCCP is their reported use of teachable moments or as what the participants described as ‘incidental teaching’. As Hyun and Marshall, (2003, p. 113) stated, ‘teachable moments arise when teachers observe, recognise and interpret the spontaneously occurring interests of diverse learners. As

\(^6\) Science Technology Engineering Mathematics
curricular opportunities, these spontaneous moments represent a confluence of students’…

particular needs, interests and curiosities’. Teachable moment strategies enable teachers to engage in ‘purposeful instructional action’ (Hyun & Marshall, 2003, p. 113) from the perspective of students. Incidental teaching can be a challenging strategy, as it requires teachers not only to understand sustainability concepts but to realise when it is appropriate to integrate it with other learning areas, even if the integration had not been intentionally planned. In this study, teachers reported that they had attempted to include the SCCP as part of their teaching practices and across learning areas, including learning areas that did not always have clear and explicit links to sustainability, such as Visual Arts.

On the flipside, the lack of reported intentionally planning for the SCCP may indicate that teachers have not been given sufficient opportunities to include essential elements in their teaching of sustainability. Teachers may require adequate time or professional development to assist with their planning. A study by Eley (2006), who interviewed 29 university teachers across various fields in education, argued that teachers do not always explicitly refer to particular teaching methods when describing their planning to others; rather, teachers focus on the context of particular teaching actions when reporting on their teaching and learning. Given that the teachers in this study referred specifically to incidental teaching, it may be that they are failing to consider higher level conceptions, such as inquiry-based approaches to teaching sustainability to develop essential skills, links to other learning areas that have the potential to be integrated with the SCCP or a multidimensional approach to teaching sustainability, including the social, environmental, and economic aspects of sustainability. Thus, if teachers are not specifically targeting sustainability within their planning (i.e., in their intentional planning), they may not be including all of the essential components that makes sustainability such a complex, yet valuable area to teach.
The findings of this study also indicate that the implementation of sustainability is teacher driven but requires school support. Lewis et al. (2014) concluded that staff require additional support to embed sustainability issues through, for example, ‘professional learning opportunities, in-class teacher modelling, and performance management accountability to enhance integration of EfS’ (pp. 135–136). Thus, the amount of support that teachers receive in a specific school context may determine the level of priority that they give to the implementation of the SCCP.

In this study, participants reported that they tended to drive the implementation of the SCCP within their schools; however, they also encountered challenges if their implementation were not complemented by valuable support from the school leadership team or other members of the teaching staff. Participants mentioned numerous examples of the type of support provided, including the school leadership team providing time and opportunities for professional development to plan the implementation of SCCP. Support from other teaching staff was also considered valuable and helped to maintain the consistency of whole-school sustainability initiatives (e.g., initiatives to encourage students to recycle paper or batteries). Participants reported that if members of the school community (e.g., the teaching staff) did not encourage their students and engage in such practices in their own classrooms, the implementation of sustainability and the SCCP in the curriculum became very challenging for those teachers who were attempting to drive the sustainability initiatives.

The different kinds of support that teachers receive (e.g., additional time for lesson planning or for developing and maintaining sustainability initiative programs, such as gardening clubs) can provide opportunities for teachers to engage with the implementation of the SCCP as part of their teaching practices. Further, a supportive school community also
provides teachers with opportunities to access other kinds of support, such as professional development support or teacher development networks (Nicholls & Thorne, 2017).

**The Curriculum is Consulted, and Teachers seek Additional Resources/Support to Guide their Planning**

Most participants reported that they used the curriculum to guide their planning at various stages (especially in the initial stages) and that they sought additional support or resources based on their understandings and perceptions of sustainability. Further, the participants were not deterred from the apparent connections (or a lack of connection) between sustainability and their learning areas; rather, these teachers sought additional resources and support as necessary. The participants tended to gravitate more towards the inclusion of concepts that were driven by their perspectives on sustainability and the needs of their classroom practices. For example, participants who had specialised in particular learning areas, such as Eva in Visual Arts, tended to focus on resources beyond the curriculum that emphasised the integration of the SCCP by accessing a network of art teachers and/or their school values program. Generalist teachers, in turn, focused on finding additional resources for other learning areas, such as HASS.

Teachers’ ability to link sustainability across the curriculum and find additional resources to support their teaching is consistent with the finding of previous studies that have shown that teachers are willing to deliberately include sustainability as part of their teaching practices even if they identify challenges in its implementation. For example, Lasen et al. (2017) found that the primary school teachers who participated in their study viewed EfS as being highly relevant to their students. Despite the barriers that they encountered with what they perceived to be a crowded curriculum that prioritised literacy and numeracy, the
majority of the participants in this study intentionally planned and implemented learning experiences that were directly related to EfS (Lasen et al., 2017).

The current research also provided insights into the extent to which the curriculum is consulted for the planning and teaching of the SCCP (all teachers except one reported that they consulted the Western Australian Curriculum in their planning). Teachers discussed integrating the SCCP across different learning areas; however, not all learning areas were reported. Learning areas such as Health and Physical Education, Mathematics and English (albeit only referred to by the occasional participant) were not commonly associated with the SCCP. In this study, more often than not, participants reported using the curriculum to assist with the implementation of the SCCP in subjects explicitly linked to sustainability, such as Geography or History, or when integrating it in their specialised learning areas (such as with Science or The Arts).

Previous studies have argued that there is a lack of explicitness in relation to SCCP in the Australian Curriculum (Kuzich et al., 2015); however, the present study found that irrespective of the level of explicitness, both generalist and specialist teachers consulted the curriculum in their planning and included the SCCP in their teaching practices. The study’s findings also differ to those of Nicholls and Thorne (2017), who argued that Queensland teachers from early childhood to Year 12 could not identify links between sustainability and the curriculum, which led to the majority of participants in their study not incluing the SCCP in their practices. The differences in the findings between this study and those of Nicholls and Thorne’s (2017) may reflect state-level differences in how the SCCP is implemented. Future research in this area should seek to explore this issue.
In the present study, both specialist and generalist teachers found additional support and resources to guide their implementation of the SCCP. This finding is valuable because it demonstrates that teachers have the potential to be the main actors driving the implementation of the SCCP even if they are not considered the key sustainability teachers in their schools. The participants not only consulted the Western Australian Curriculum, but also displayed confidence in the implementation of the SCCP by describing how they procured additional resources as necessary.

**Teachers’ Diverse Understandings of Sustainability are not Reflected in their Reported Practices**

Participants reported that they found teaching sustainability valuable for their students. This attribution of value to sustainability may have affected their drive to include the SCCP in their teaching practices. Previous studies have suggested that teachers’ perceptions of sustainability may contribute to how and the extent to which they implement sustainability in their classrooms (Anyolo et al., 2018; Buchanan, 2012; Cotton, 2006; Evans et al., 2012; Kennelly et al. 2012; Lasen et al., 2017; Nicholls & Thorne, 2017; Taylor et al., 2003). For example, Anyolo et al. (2018) interviewed nine secondary school teachers in Namibia and found that teaching practices are indeed affected by teachers’ perceptions. In Anyolo et al.’s study, the teachers who held the perception that Education for Sustainable Development (similar to EfS in Australia) would promote a sustainable future, drew on practices that were centred on lecturing and question/answer teaching methods. Conversely, the one teacher who perceived Education for Sustainable Development as a form of skills-based education tended to focus on exposing students to first-hand experiences and problem-solving and decision-making teaching practices. Thus, in this particular study, the teaching
practices used by teachers varied based in a way that was contingent with how they perceived Education for Sustainable Development.

The perceptions or understandings teachers reported within this study included social, environmental and economic aspects of sustainability; however, the examples of applications to practice provided mostly referred to the environmental dimension. This is consistent with other studies that have suggested that both pre-service and experienced teachers’ perceptions of sustainability are focused on ecological or science-based concepts (Birdsall, 2014; Corney, 2000; Dyment & Hill, 2015; Lummis et al. 2016; Nicholls & Thorne, 2017; Preston, 2014). Hill and Dyment (2016), for instance, interviewed over 250 kindergarten to year 12 principals and curriculum leaders in Tasmania and found that the ecological or science-based emphasis may be attributable to a lack of professional learning support and that such support is required to enhance teachers’ understanding of the SCCP.

These findings suggest that despite the value teachers place on sustainability, the richness and breadth of teachers’ understandings of sustainability may not necessarily be reflected in their practices. Thus, teachers may not be adopting a multidimensional approach when teaching sustainability. If this is the case, this could be problematic, as this approach may provide students with a limited and unidimensional understanding of sustainability and fail to address the complex nature of the construct. In their study Green and Somerville (2015) interviewed in-service and pre-service teachers across eight primary schools and found that a unidimensional approach could be the result of teachers’ limited understandings of sustainability. The present study, in contrast, found that the participants, when prompted, had a complex and multidimensional understanding of sustainability. As reported in Chapter 4, half of the participants in this study reported on all three dimensions of sustainability by describing the social, economic and environmental concepts that they understood to be
relevant to sustainability. However, when it came to volunteering information about their practices, the majority of participants only mentioned examples pertaining to the environmental dimension of sustainability, such as waste management (i.e., recycling) or gardening clubs. Such examples reflect a more unidimensional view. In arguing this, it must be acknowledged that the interviews only asked teachers to report on examples of their practice in general terms, without prompting them to think about the different sustainability dimensions. It is therefore possible for teachers to have reported only those examples more readily available to them without this necessarily reflecting the breath of their practices. Future research should seek to explore through different data collection strategies (i.e., interview and observations) whether teachers are implementing the SCCP by including social and economic dimensions in their practices.

**Implications**

The study showed that: 1) both generalist and specialist teachers integrated the SCCP in their practice across various learning areas to various extents; 2) teachers sought additional support and resources outside the curriculum; and 3) teachers showed diverse understandings of sustainability that reflect the multidimensionality of this construct (i.e., its social, economic and environmental dimensions). In reporting their experiences, teachers identified and described several factors (other than the curriculum) as contributing to the implementation of the SCCP.

This study explored teachers’ perceptions of sustainability, the ways in which teachers consult the curriculum and how teachers include the SCCP in their practices. This research also considered how these three aspects were connected (see Figure 4.5). Similar to the nature of sustainability, the implementation of the SCCP is complex. However, this study provided
insights into the factors affecting the implementation of the SCCP by teachers. Examples of the factors include ensuring that the SCCP is integrated across different learning areas, procuring valuable support and resources in addition to the curriculum and attributing value to teaching students about sustainability. Educators should consider and be guided by these factors when planning to implement the SCCP in their classrooms and to some extent, when planning to implement school-wide practices. For example, a teacher who would like to include the SCCP in their teaching could use the outside circle of Figure 4.5 to understand the factors that other teachers (who are actively engaging with the SCCP) perceive as affecting the implementation the SCCP. As such, this model can either serve practicing teachers or school leaders as a tool to guide or assess implementation of sustainability cross-curriculum priority.

**Limitations and Areas for Future Research**

The most obvious limitation of this study is its reliance on self-reported data from teachers. Relevant insights were gained from speaking to teachers about their understandings of sustainability and their implementations of the SCCP; however, many more insights could be gained by observing teachers’ practices, consulting relevant lesson plans and analysing student work samples. Future research should seek to examine teaching artefacts and/or classroom observations and not rely purely on interviewing participants and self-reported data.

The teachers who participated in this study comprised teachers who were self-selected. This could be viewed as a limitation of the study. This study did not focus on recruiting key sustainability teachers or teachers from schools that were focused on sustainability initiatives. However, all of the participants mentioned how passionate they
were about sustainability and four of the participants taught at schools that had been built sustainably. This could indicate a bias within the study; however, teachers from all Perth metropolitan schools were given an opportunity to participate in the study and the sample comprised a good representation of generalist and specialist teachers from both sustainably and non-SBSs. Future research should specifically seek to recruit teachers from schools that are not known for their implementation of sustainability rather than selecting a sample that includes all public schools.

Additionally, future research should examine whether teachers include other components of sustainability in their practices, such as teaching practices that support the development of skills (i.e., ethical, creative, innovative, critical-thinking and problem-solving skills). In addition to determining whether teachers include skills-based approaches relevant to sustainability, it would be valuable to explore the extent to which teachers include various sustainability concepts in their teaching practices (and whether some of these include controversial issues) as well as any of the other components that contribute to the complexity of sustainability. In broader terms, it would be valuable if future research were to explore not only if teachers include sustainability in their teaching practices but also what and how they decide what to include in their teaching practices. Specifically, future research should seek to answer this question: What sustainability concepts and skills do teachers include in their teaching practices and how do they go about including these concepts in their teaching practices?

As curriculum was one of the aspects considered by this study, a systematic content analysis of the Western Australian Curriculum could be conducted to explore the explicitness of sustainability-focused content across learning areas. This would be useful to understand the extent to which sustainability is present in the curriculum. Further investigations of other
state curriculum frameworks, the Early Years Learning Framework or the Australian Curriculum could then be considered (Hill & Dyment, 2016).

Finally, future research should seek to understand how pre-primary or secondary school teachers in a variety of different school contexts (Aboriginal, rural or urban communities in WA) perceive sustainability, the extent to which they integrate the SCCP into their teaching practices and whether this includes support from the curriculum.

**Personal Reflection**

One of the main insights from my research came from witnessing how the participant teachers implemented sustainability without requiring prescriptive curriculum support to assist them in their implementation. This was at odds with my initial position at the start of this study and my expectation that teacher participants would encounter difficulties with the integration of the SCCP to such an extent that it would limit their implementation or prevent them from teaching it altogether. My initial standpoint was largely driven by my professional experience and my frustration at a perceived lack of specific guidelines for implementing the SCCP. Interestingly, the teachers I interviewed were not deterred from implementing the SCCP and used the curriculum in its current form to actively guide some aspects of their practices. This was an important part of my research journey. It was reassuring and informative to interview teachers who were confident in sharing how their understandings of sustainability, consultation of the curriculum and teaching practices have contributed to them overcoming what I initially viewed as a substantial challenge to the implementation of the SCCP (irrespective of their teaching experience). In the interviews, the teacher participants shared a variety of factors that contribute to the implementation of the SCCP and how these
factors contribute to a manageable approach being adopted to ensure the inclusion of the SCCP in classrooms and possibly schools.

The participants who took part in this study provided examples of teaching experiences that demonstrated their passion for sustainability. The extent to which they assessed the quality of their teaching and the inclusion of the SCCP showcases the value they attribute to teaching sustainability. It was encouraging to hear that participants had been including sustainability in areas that do not have explicit links to the SCCP, such as Visual Arts, and in ways that are both creative and innovative for students (e.g., as part of students’ daily classroom routines).

Conclusion

This study showed that there are factors (other than the curriculum) that can influence the implementation of the SCCP. The teachers who participated in this study reported that they implemented the SCCP with school support, sought additional resources as necessary and attributed value to the teaching of sustainability. Further, this study showed that these factors contribute to how the SCCP is implemented by teachers and are related to teachers’ perceptions, the curriculum and teaching practices. The results also revealed that there is a holistic connection between these three factors.

It is important that educators, curriculum developers and school leaders consider the connections between teachers’ perceptions, the curriculum and teaching practices and the various other factors identified and discussed by this study when considering the implementation of the SCCP. Further, it could be argued that the implementation of the SCCP is predominately driven by teachers. For example, the extent to which the SCCP is implemented may vary based on whether teachers see the value of teaching sustainability, are
provided with adequate resources or support and/or are capable of integrating the SCCP across learning areas.

The experiences described by the teacher participants in this study suggest that, though teachers are the actors driving the implementation of the SCCP, this does not mean that they should assume sole responsibility for its implementation. For example, providing teachers with adequate support and resources and opportunities to integrate the SCCP across learning areas could enable teachers to expand their understandings of the diversity of sustainability and could add value to the teaching of sustainability. Such approaches would not only allow teachers to continue showcasing their agency but would also empower them to incorporate a wider range of skills and concepts into their teaching repertoires.
References


THE IMPLEMENTATION OF SUSTAINABILITY AS A CROSS-CURRICULUM PRIORITY


Appendix A Email to Principals

Email to Principals

Subject line: Murdoch University Research Opportunity-Education for Sustainability

PLEASE RETAIN FOR YOUR RECORDS

Dear School Principal

My name is Kristina da Silva-Branco, and I am completing my Master of Education by Research degree at Murdoch University. Your school is one of the schools within the Perth Metropolitan area that has been selected as a potential participant in this research.

The aim of this study is to understand how primary educators perceive the integration of sustainability as a cross-curriculum priority. This project has received approval from Murdoch University Human Research Ethics Committee (Approval ID: 2017/198) and has met the policy requirements from the Department of Education, WA (Approval ID: D18/0047367).

Sustainability has become a very important focus for many schools and an integral part of the Western Australian Curriculum. However, little research has so far considered how specialist and generalist teachers in primary schools integrate sustainability. The aim of this study is therefore to gain an understanding of how practicing teachers implement sustainability as a cross-curriculum priority. The study focuses on Generalist Year 5 and Year 6 teachers (because the curriculum in these year levels encompasses all dimensions of sustainability - environmental, social, and economic) as well as Specialists (Arts, Music, Science, Languages, Health and Physical Education). Our study provides an opportunity for teachers to share their perceptions of sustainability as a cross-curriculum priority and to articulate and reflect upon their pedagogical practices in this area.

Please note: Your school does not need to be doing anything special around sustainability to be part of the study.
We would like our participants to benefit as much as possible from their participation in this study. Hence, as a participant in this research your school will have access to the final summary of overall findings of the research through a final report and through articles published in practitioner-based publications. In addition, you will be offered a face-to-face presentation of the final results from all participating teachers, thus giving your teachers and school leadership the opportunity to reflect upon practice and approaches to sustainability.

This research will be conducted during Terms 1 and 2, 2018 and involves one interview (approx. 45 min) per teacher participant. Please find attached the Principal information letter explaining in more detail what is involved in this study. Also attached is the Principal and Participant (teacher) consent forms, the Participant information letter and the Department of Education ethics approval letter. If, after reading the information you would like your school to be part of this research please return the signed consent form to Kristina da Silva-Branco (kristina.da-silva-branco@murdoch.edu.au) who will then contact you with further information.

If you would like to discuss any aspect of this study or have any questions, please feel free to contact us using the details below. Alternatively, I would be delighted to come to your school at a time convenient to you for an informal meeting to discuss the research and answer any questions you or your staff may have.

You can contact us at:

Kristina da Silva-Branco (Masters Student Researcher)  
kristina.da-silva-branco@murdoch.edu.au
Dr Amanda Woods-McConney (Principal Supervisor)  
a.woods-mcconney@murdoch.edu.au
Phone: 08 9360 6467

Thank you for taking the time to consider participating in the research and we look forward to hearing from you in the near future.

Kind regards,

Kristina da Silva-Branco
Master of Education by Research Candidate
School of Education

Murdoch University

90 South Street, Murdoch WA 6150

kristina.da-silva-branco@murdoch.edu.au
Appendix B Information Letter: Principals

Information Letter: Principals

PLEASE RETAIN FOR YOUR RECORDS

Through the lens of teachers: Understanding the Implementation of Sustainability as a Cross-curriculum Priority

Dear School Principal

Many thanks for expressing interest in taking part in this study. This research aims to investigate how the Sustainability Priority is being implemented in primary classrooms and what it means for teachers and their practice. This study is supervised by Dr Amanda Woods-McConney and Dr Deborah Pino-Pasternak at Murdoch University.

Nature and purpose of the study

Little research was found that considers how specialist and generalist teachers integrate sustainability, which is why both are included within this study design. However, the aim of this study is not to compare groups. Instead this study is designed to gain an understanding of how practicing teachers integrate sustainability as a cross-curriculum priority.

If you consent to teachers at the school participating in this research, it is important that you understand the purpose and procedures involved in this study. Please make sure that you ask any questions you may have, and that all your questions have been answered to your satisfaction before you agree to participate.

What the study will involve

Selection Criteria:

We are looking for teachers who meet the following criteria:
• A generalist Year 5 or 6 teacher with at least one year of past experience in these year levels
• A specialist teacher (Arts, Languages, Science, Physical Education or Music) of any year level

If you consent to teachers participating in this study, please be aware that participants will be asked to complete the following task:

One hour-long interview that will ask about their perceptions about sustainability and experiences teaching and implementing the Sustainability Priority. **Audio recordings will not be published.**

**Please note:** This does not mean that teachers need to have extensive experience implementing the Sustainability Priority. This study wants to capture teachers’ genuine experiences even if those involve little exposure to the Sustainability Priority or challenges in its implementation.

Once you (and teacher participants) have provided consent, interviews will be held on the school premises at a time that is convenient to both you and the teacher participant.

**Voluntary participation and withdrawal from the study**

Participation in this study is entirely voluntary. Teachers do not have to answer specific questions during the interview if they do not want to. They may also withdraw from this study without discrimination or prejudice. If they withdraw, all information provided will be destroyed unless it is already part of an anonymized and already analysed body of data.

**Privacy**

Your privacy, as well as the privacy of teachers at your school, is very important. All information will be treated as confidential and no names or other details that might identify you or the school you work at will be used in any published or unpublished work arising from the research.

**Benefits of the study**

It is possible that there may be no direct benefit to you or the school from participation in this study. However, this interview may provide an opportunity for teachers to reflect upon their
own practice and may give them an opportunity to be heard and to validate their teaching experiences.

While there is no guarantee that you will personally benefit, the knowledge gained from your participation may help others in the future such as other teachers or environmental educators. This study may also contribute to science and environmental education research through the dissemination of the findings through peer-reviewed journals and conferences.

If you have any questions about this project please feel free to contact either myself, kristina.da-silva-branco@murdoch.edu.au or my supervisor, Dr. Amanda Woods-McConney, a.woods-mcconney@murdoch.edu.au (08 9360 6467). My supervisor and I are happy to discuss with you any concerns you may have about this study.

An overall report of findings will also be provided to the principals and teachers of participating schools during Term 1, 2019. Please note: participants and schools will not be identified in any reports.

If you are willing to participate in this study, please complete the Consent Form and return to me, kristina.da-silva-branco@murdoch.edu.au. Then, please distribute the Information Letter-Teachers and Consent Form-Teachers (attached to the email) to any specialist and Year 5/6 teachers at your school. Teachers can then email me their preferred date and time for their interview.

Thank you for your assistance with this research project.

Sincerely,

Kristina da Silva-Branco

This research/study has been approved by the Murdoch University Human Research Ethics Committee (Approval 2017/198) and has met the policy requirements of the Department of Education. If you have any reservation or complaint about the ethical conduct of this research, and wish to talk with an independent person, you may contact Murdoch University’s Research Ethics Office (Tel. 08 9360 6677 or e-mail ethics@murdoch.edu.au). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Appendix C Consent Form: Principal

Consent Form: Principal

Through the lens of teachers: Understanding the Implementation of
Sustainability as a Cross-curriculum Priority

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<td>I, __________________________, have read the participant information sheet, which explains the nature of the research and the possible risks. The information has been explained to me and all my questions have been satisfactorily answered.</td>
<td>☐</td>
</tr>
<tr>
<td>I have been given a copy of the information letter to keep.</td>
<td>☐</td>
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<tr>
<td>I am happy for the teacher interviews to be held within the school grounds (i.e. library or staff room).</td>
<td>☐</td>
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<tr>
<td>I understand that teachers will be asked to consent to the interview being audio recorded as part of this research.</td>
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<td>I understand that teaching staff who choose to participate, do not have to answer specific questions if they do not want to.</td>
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<td>I understand that I can withdraw from this study without needing to give a reason and without consequences to myself.</td>
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<td>I understand that teaching staff can withdraw from the study without needing to give a reason and without consequences.</td>
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<tr>
<td>I agree to results of the study being published provided that no identifying details are used, including the names of the school and/or school staff</td>
<td>☐</td>
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<td>I have been informed that I (nor the teacher participants) may not receive any direct benefits from participating in this study.</td>
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<td>I understand that a summary of the results will be given to the school upon completion of the research (Term 1, 2019). Please note: participants and schools will not be identified in any reports.</td>
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<tr>
<td>I understand that all information provided by me (and the teacher participants) is treated as confidential and will not be released by the researcher to a third party unless required to do so by law.</td>
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Participant’s name: ________________________________
Signature of Participant: ______________________ Date: ……/……/……

I confirm that I have provided the Information Letter concerning this study to the above participant; I have explained the study and have answered all questions asked of me.

Signature of researcher: ______________________ Date: ……/……/……
Appendix D Information Letter: Participants

Information Letter: Participants

PLEASE RETAIN FOR YOUR RECORDS

Through the lens of teachers: Understanding the Implementation of Sustainability as a Cross-curriculum Priority

Dear participant,

Many thanks for expressing interest in taking part in this study. This research aims to investigate how the Sustainability Priority is being implemented in primary classrooms and what it means for teachers and their practice. This study is supervised by Dr Amanda Woods-McConney and Dr Deborah Pino-Pasternak at Murdoch University.

Nature and purpose of the study

Little research was found that considers how specialist and generalist teachers integrate sustainability, which is why both are included within this study design. However, the aim of this study is not to compare groups. Instead this study is designed to gain an understanding of how practicing teachers integrate sustainability as a cross-curriculum priority.

If you consent to take part in this research study, it is important that you understand the purpose and procedures involved in it. Please make sure that you ask any questions you may have, and that all your questions have been answered to your satisfaction before you agree to participate.

What the study will involve

Selection Criteria:

We are looking for teachers who meet the following criteria:

- A generalist Year 5 or 6 teacher with at least one year of past experience in these year levels
- A specialist teacher (Arts, Languages, Science, Physical Education or Music) of any year level

If you decide to participate in this study, you will be asked to complete the following task:

45 min- 1 hour-long interview that will ask about your perceptions about sustainability and your experiences teaching and implementing the Sustainability Priority. Audio recordings will not be published.
Please note: This does not mean that you need to have extensive experience implementing the Sustainability Priority. This study wants to capture teachers’ genuine experiences even if those involve little exposure to the Sustainability Priority or challenges in its implementation.

The interview is to be held on the school premises at a time of your convenience (this will be left to the discretion of each teacher and subject to consent obtained from the school Principal).

Voluntary participation and withdrawal from the study

Your participation in this study is entirely voluntary. You do not have to answer specific questions during the interview if you do not want to. You may also withdraw from this study without discrimination or prejudice. If you withdraw, all information you have provided will be destroyed unless it is already part of an anonymized and already analysed body of data.

Privacy

Your privacy is very important. All information will be treated as confidential and no names or other details that might identify you or the school you work at will be used in any published or unpublished work arising from the research.

Benefits of the study

It is possible that there may be no direct benefit to you from participation in this study. However, this interview may provide an opportunity for you to reflect upon your own practice and may give you an opportunity to be heard and to validate your teaching experiences.

While there is no guarantee that you will personally benefit, the knowledge gained from your participation may help others in the future such as other teachers or environmental educators. This study may also contribute to science and environmental education research through the dissemination of the findings through peer-reviewed journals and conferences.

If you have any questions about this project please feel free to contact either myself, kristina.da-silva-branco@murdoch.edu.au or my supervisor, Dr. Amanda Woods-McConney, a.woods-mcconney@murdoch.edu.au (08 9360 6467). My supervisor and I are happy to discuss with you any concerns you may have about this study.

An overall report of findings will also be provided to the principals and teachers of participating schools during Term 1, 2019. Please note: participants and schools will not be identified in any reports.

If you are willing to participate in this study, please complete the Consent Form and return to me, kristina.da-silva-branco@murdoch.edu.au. To assist with organising the interview date/time, please also include your email within the space provided in the consent form. A date and time can then be set up for the interview. To accurately represent your interview responses, transcripts from the interview will also be sent to you in order to verify their accuracy.

Thank you for your assistance with this research project.

Sincerely,
Kristina da Silva-Branco

This research/study has been approved by the Murdoch University Human Research Ethics Committee (Approval 2017/198) and has met the policy requirements of the Department of Education. If you have any reservation or complaint about the ethical conduct of this research, and wish to talk with an independent person, you may contact Murdoch University’s Research Ethics Office (Tel. 08 9360 6677 or e-mail ethics@murdoch.edu.au). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Appendix E Consent Form: Participant

Consent Form- Teacher

Through the lens of teachers: Understanding the Implementation of Sustainability as a Cross-curriculum Priority

Please tick

I, _____________________ have read the participant information letter, which explains the nature of the research and the possible risks. The information has been explained to me and all my questions have been satisfactorily answered. ☐

I have been given a copy of the information letter to keep. ☐

I am happy to be interviewed. ☐

I am happy for the interview to be audio recorded as part of this research. ☐

I understand that I do not have to answer specific questions if I do not want to. ☐

I understand that I can withdraw from this study without needing to give a reason and without consequences to myself. ☐

I understand that if I choose to withdraw from this study, all information I have provided will be destroyed unless it is already part of an anonymized and already analysed body of data. ☐

I agree to results of the study being published provided my name or any identifying data is not used. ☐

I have been informed that I may not receive any direct benefits from participating in this study. ☐

I understand that all information provided by me is treated as confidential and will not be released by the researcher to a third party unless required to do so by law. ☐

I understand that a summary of the results will be given to the school upon completion of the research (Term 1, 2019). Please note: participants and schools will not be identified in any reports. ☐

Participant’s name: ________________________

Signature of Participant: ________________________ Date: ……/……/……
I confirm that I have provided the Information Letter concerning this study to the above participant; I have explained the study and have answered all questions asked of me.

Signature of researcher: ___________________________ Date: ....../....../......

-----------------------------------Below is to be destroyed after interview-----------------------------------

Participant’s Email (to organise interview and verify the accuracy of interview):

___________________________________________________________________________

Signature of Participant: ___________________________ Date: ....../....../......
Appendix F Interview Protocol

Interview Protocol

Researcher: (once consent form is signed) Thank you for taking the time to participate in this interview. The aim of this study is to gain an understanding of the integration of sustainability as a cross-curriculum priority through the lens of teachers. If you’re ready to begin, I’d like to start by asking some general questions.

LEAD-IN QUESTIONS

1. How long have you been teaching? What year levels have you taught in the past?
2. What is your area of specialization? (for specialist teachers only)

MAIN QUESTIONS

Researcher: I will now move on to ask about your perception and understanding of sustainability, how you go about implementing the Sustainability Priority and about the curriculum/documentation you may or may have not used when implementing sustainability. Please be assured that my aim is to understand these aspects through your views and experiences, and not to assess your teaching practices or your knowledge of sustainability or the curriculum.

Teacher Perception

1. Researcher: I would like us to talk about sustainability so I have brought a prompt that may help to answer the next couple of questions (researcher provides diagram to participant - see Figure 1 below). This diagram has the word 'Sustainability' within the circle in the centre. Could you please fill in the surrounding empty circles with as many words/terms/concepts you understand to be relevant to sustainability? (participants complete activity)
   a. Why did you choose these words/terms/concepts? (more specific questions may be prompted by the interviewee responses)
Implementation of the Sustainability Priority

Researcher: Now, I would like to ask about how you go about implementing the Sustainability Priority within your teaching practices. If you are unfamiliar or would like more information about this priority, please feel free to look through the hardcopy printout from the School Curriculum and Standards Authority that I have brought today.

1. Can you tell me about some of the key sustainability initiatives in your school?
2. How relevant do you feel the Sustainability Priority is within your teaching practices? Why?
3. What are some of the teaching practices you have used when integrating the Sustainability Priority?
   a. How have you used these?
   b. What are some teaching practices that you have considered, but not yet used?
   c. Why did you decide (or not) to use these particular teaching practices?
4. What are your thoughts about assessing the sustainability priority?
5. Can you describe any successes you have experienced when integrating the Sustainability Priority with other learning areas?
   a. Can you describe any difficulties you have experienced while integrating the Sustainability Priority within other learning areas?
   b. In your opinion, what are the factors that may have contributed to these experiences?

Western Australian Curriculum document and other resources

Researcher: Now I would like us to talk about the curriculum and documentation you may or may have not used when implementing sustainability. Again, please feel free to consult the hardcopy curriculum document from the School Curriculum and Standards Authority at any time.

1. What resources have you found useful in your practice when implementing the sustainability priority?
   a. How have they been useful for you?
2. Can you describe where within the Western Australian Curriculum you have seen references to sustainability or to the Sustainability Priority? Provide hardcopy of WA curriculum document if needed
3. On the basis of your experiences, what do you think are the support teachers have when integrating the Sustainability Priority?

Researcher: Thank you again for participating in this interview. Do you have any other questions or comments that you would like to add?

Figure 1: Sustainability Diagram for Teacher Perception-Question 1
Appendix G Interview Protocol: Principal

Interview Protocol: Principal

Researcher: (once consent form is signed) Thank you for taking the time to participate in this interview. The aim of this study is to gain an understanding of the integration of sustainability as a cross-curriculum priority through the lens of educators. If you’re ready to begin, I’d like to start by asking some general questions. Your responses can be based on your role as Principal or previous experiences within the classroom. Please note that this interview is being audio recorded, would you like to continue? (once participant provides verbal permission, the interview can begin)

LEAD-IN QUESTIONS

1. I would like to know a little bit about your professional background. How long have you been within this particular role? What year levels have you taught in the past?

MAIN QUESTIONS

Researcher: I will now move on to ask about your perception and understanding of sustainability, how you go about implementing the Sustainability Priority and about the curriculum/documentation you may or may have not used when implementing sustainability. Please be assured that my aim is to understand these aspects through your views and experiences, and not to assess your professional practices or your knowledge of sustainability or the curriculum.

Teacher Perception

1. Researcher: I understand that you have been working on issues concerning sustainability for a while. I would like us to talk about your understanding of sustainability. For that I have brought a prompt (researcher provides diagram to participant - see Figure 1 below). This diagram has the word ‘Sustainability’ within the circle in the centre. Could you please fill in the surrounding empty circles with as many words/terms/concepts you understand to be relevant to sustainability? (participants complete activity)
a. Why did you choose these words/terms/concepts? (more specific questions may be prompted by the interviewee responses)

Implementation of the Sustainability Priority

Researcher: Now, I would like to ask about how you go about implementing the Sustainability Priority within your professional practices. If you are unfamiliar or would like more information about this priority, please feel free to look through the digital copy from the School Curriculum and Standards Authority that I have brought today.

1. Can you tell me about some of the key sustainability initiatives in your school?
2. How relevant do you feel the Sustainability Priority is within teaching practices in your school? Why?
3. What are some of the teaching practices teachers within your school have used when integrating the Sustainability Priority?
   a. How have these been used?
   b. What are some teaching practices that you have considered, but have not yet used in your school?
   c. Why did you decide (or not) to use these particular teaching practices within your school?
4. What are your thoughts about assessing the sustainability priority?
5. Can you describe any successes that teachers may have experienced when integrating the Sustainability Priority with other learning areas?
   a. Can you describe any difficulties teachers may have experienced while integrating the Sustainability Priority within other learning areas?
   b. In your opinion, what are the factors that may have contributed to these experiences?

Western Australian Curriculum document and other resources

Researcher: Now I would like us to talk about the curriculum and documentation you may or may have not used when considering the implementation of sustainability. Again, please feel free to consult the digital curriculum document from the School Curriculum and Standards Authority at any time.
1. What resources have you found useful in your practice for teachers who are attempting to implement the sustainability priority?
   a. How have they been useful for teachers?
2. Can you describe where within the Western Australian Curriculum you have seen references to sustainability or to the Sustainability Priority? Provide digital copy of WA curriculum document if needed
3. On the basis of your experiences, what do you think are the support teachers have when integrating the Sustainability Priority?

Researcher: Thank you again for participating in this interview. Do you have any other questions or comments that you would like to add?

Figure 1: Sustainability Diagram for Teacher Perception-Question 1