



FACULTY OF EDUCATION
DEPARTMENT OF PEDAGOGICAL CURRICULAR AND
PROFESSIONAL STUDIES

EDUCATORS' PERSPECTIVE ON EDUCATION FOR SUSTAINABLE DEVELOPMENT IN CHILDCARE CENTERS IN VICTORIA, AUSTRALIA

Bartłomiej Piotr Kolodziejczyk

Master's thesis:	30 credits
Programme/course:	S2ESD ESD700
Level:	Second cycle
Term/year:	Spring 2022
Supervisor:	Hanan Innabi
Examiner:	Ulla Lundqvist

Abstract

Master's thesis:	30 credits
Programme/Course:	S2ESD ESD700
Level:	Second cycle
Term/year:	Spring 2022
Supervisor:	Hanan Innabi
Examiner:	Ulla Lundqvist
Keywords:	Early childhood education, sustainable development, Victoria, sustainable practices

Aim: The purpose of this research thesis is to describe practices used by childcare centers in the Australian state of Victoria, as well as to understand educators' attitudes, knowledge, and needs regarding ESD. This research thesis seeks to answer the following question: What are the practices, attitudes, knowledge, and needs of early childhood educators in ESD in State of Victoria?

Theory: This study's conceptual framework was built on a mix of theories, including Deweyan theory, which focuses on the development of student knowing, being, and doing, and critical theories, which focus on reflective assessment and critique of society and culture in order to reveal and challenge underlying power structures and inequalities.

Method: The study relies on semi-structured interviews with early childhood educators in Victoria, Australia. The empirical data gathered as part of this study was transcribed, coded, and classified to enable discussion and reveal what activities and practices are currently used in early Victorian education, and to understand educator's attitude, knowledge, and needs in relation to ESD.

Results: Semi-structured interviews with early childhood educators in Victoria revealed common ESD practices across various childcare centers in the state. Certain discrepancies in ESD education have been identified between rural and urban centers. While the overall attitude and knowledge of educators was sufficient, some educational gaps have been identified among older educator group. Continuous training and education for early childhood educators has been identified as one of the educators' needs in order to further develop skills and understanding in the rapidly evolving ESD space. More active government participation in driving ESD in Victoria through guidelines and policies is required.

Foreword

The inspiration for this thesis came thanks to my son, Hiroshen. Right now, Hiro is over two years old and attends one of the childcare centers in Victoria. Climate change, pollution, and other sustainability issues are real, and I've often thought about how different Hiro's childhood is from mine over three decades ago since he was born. The climate crisis can be addressed, but we must shift away from business as usual and toward a more sustainable, clean, environmentally friendly, and circular economy. This dramatic shift requires education and the development of sustainable habits and practices. This revolution should start from early childhood education and continue through adult life. Hiro, thank you for being my inspiration.

I am grateful to my wife, Ranthini. Ran, thank you for your support and encouragement in all my pursuits to follow my ideas and dreams. Thank you for your patience and understanding. I would not be where I am without you.

Thank you to my professors and teaching staff at the University of Gothenburg. Your knowledge and expertise were essential in my education journey, while your patience, guidance, and advice were invaluable in completing assignments and courses. I never planned to earn a master's degree in education. It was an impulse that made me apply for this program.

I want to give special thanks to my thesis advisor, Hanan Innabi, for guiding me through this Master thesis research.

To my friends, thank you for being with me. Thank you for listening and supporting me through this journey. Thank you to all the students that I had the privilege of working with during this program. Thank you for your friendship and for sharing common challenges.

“Whether you think you can or think you can't, you're right.”

— Henry Ford

Melbourne, August 2022

Table of contents

- Introduction 1
 - Problem statement 3
- Literature review 5
 - Theoretical framework 8
- Research methodology 11
 - Methodological design 13
 - Interview design and preparation 13
 - Data collection strategy 13
 - Data analysis..... 14
 - Validity and reliability in interview research 15
 - Study limitations..... 15
 - Participation and collaboration..... 16
 - Research ethics 16
- Results 18
- Discussion 26
 - Analysis of synergies..... 26
 - Limitations and improvements 28
 - Answering research question..... 29
- Conclusions 32
- Future work 34
- References 36
- Appendix 40
 - Interview communication..... 40
 - Interview questions..... 41
 - Consent form template 43

Introduction

It is becoming increasingly apparent that sustainability education should be introduced to children at an early age (Buckler & Creech, 2014). More surprisingly, the body of work on early childhood education and sustainability is unusually consistent and broadly in agreement, suggesting multiple advantages of early education for sustainable development and its positive impact on overall child development (Elliott, McCrea, Newsome, & Gaul, 2016). Such consistency in study outcomes is exceedingly rare not only within the education field but also other fields of research. These early and consistent findings have been broadly promoted around the globe, acknowledged by policymakers, and incorporated in many national educational curricula. The Australian government and its state governments were early proponents of early childhood education for sustainable development. This was achieved by adopting and incorporating sustainability education in their national and state plans (Buckler & Creech, 2014).

Australia is a place of economic progress that heavily relies on mining and fossil fuels to fulfil its growth and GDP aspirations. Yet, Australia's biodiverse and unique flora and fauna and stringent environmental law, place Australia at the forefront of sustainability efforts. A top-down approach to education for sustainable development driven by the Federal Government and broadly adapted by the State Governments provides an ESD umbrella starting with an early childhood education (Department of Education and Training (Victoria), 2016; Department of Education, 2009).

Australian states benefit from significant political and regulatory autonomy. This autonomy and freedom to develop state standards is somehow limited in education. This limitation is to ensure that knowledge and standards are transferable within the country. Yet, while educational curricula are broadly established and enforced by the federal government, they may differ slightly between states (Department of Education and Training (Victoria), 2016; Department of Education, 2009; Elliott et al., 2016).

Numerous studies discuss the Australian perspective on education for sustainable development in early education from a framework level (Davis, 2012; Elliott et al., 2016). However, it is unclear to what extent these frameworks and government perspectives are implemented in practice. Rather than focusing on federal and state frameworks, the current study seeks to assess how ESD is applied in early education from a more practical standpoint, as well as to investigate the extent to which national and state frameworks are implemented at early childcare centers. In order to assess the degree of implementation of ESD practices, interviews with childcare center educators in Victoria were conducted. Victoria was chosen as a target geographic location due to the researcher's familiarity with the state, which is Australia's second-most populous and progressive state, and the lack of comparable evaluations performed locally. Another important consideration is to understand whether educators have sufficient knowledge

and appropriate attitude towards ESD. It is important to convey appropriate knowledge, however, having the positive attitude towards teaching ESD is equally important. Teachers have a great influence on their students, as the perception and attitude of the teacher can greatly influence students' views (Ulug, Ozden, & Eryilmaz, 2011). As shown by Maidou et al. most pre-service teachers in Greece had knowledge on environmental aspects but did not consider societal and financial matters to be pillars of ESD (Maidou, Plakitsi, & Polatoglou, 2019). The study by Maidou and colleagues proved that teachers lack knowledge of ESD. Similar conclusions were made by Balakrishnan et al. on Malaysian undergraduate students. Teachers' education has a pivotal role in the process of societal change and for leading towards a sustainable future (Balakrishnan, Tochinai, & Kanemitsu, 2020). Nousheen et al. showed a significant increase in student attitude towards sustainable development after studying the ESD course, proving the role of educators in shaping the ESD understanding (Nousheen, Yousuf Zai, Waseem, & Khan, 2020). Furthermore, Michalos and colleagues (Michalos, Creech, McDonald, & Kahlke, 2011) surveyed 506 adults to assess respondents' knowledge, attitudes, and behaviors regarding the basic themes of the UN Decade (Buckler & Creech, 2014), while 294 students in grades 6 to 12 in four Canadian schools were surveyed using a simplified version of the same questionnaire. The study concluded that, while attitudes and knowledge were practically equally important in the student sample, attitudes were far more important than education in the adult sample. The findings of this study demonstrate the impact of knowledge and attitude toward ESD, but they also demonstrate the benefits of shaping ESD attitudes beginning in early childhood education, as evidenced by differences in survey results of adult and student samples.

Department of Education, Skills, and Employment at Australian Government, in conjunction with state and territory governments, the education sector, and academics, established a nationwide guide called the Early Years Learning Framework. This guide aims to support and nurture young children's learning from birth to five years of age and enable their transition to school. *Belonging, Being & Becoming – The Early Years Framework* (Department of Education, 2009) is part of the National Quality Framework for Early Childhood Education and Care. The Framework is based on a number of so-called outcomes, one of which - children become socially responsible and show respect for the environment - emphasizes the concepts of sustainability and respect for the environment.

An official Educators' Guide to the Early Years Learning Framework for Australia (Department of Education and Training, 2011) provides guidelines to educators regarding the application of the above outcome. Sustainability dimension in this guide is focused on a case study, where children are encouraged to play in the garden and explore its values and benefits.

Early education curriculum in Victoria adapts the recommendations of the Early Years Learning Framework. The Curriculum and Assessment Authority and the Department of Education and Training (Victoria) have published the Victorian Early Years Learning and Development Framework (Department of Education and Training (Victoria), 2016). The Framework applies

to childhood education and is intended for children aged birth to eight years. The Victorian Early Years Learning and Development Framework (VEYLDF) adopts a comprehensive approach to children's learning and development and aims toward the achievement of the nationally agreed Early Years Learning Outcomes outlined in the Early Years Learning Framework for Australia (Department of Education and Training, 2011). As such, the state of Victoria curriculum reflects and does not differ from the national curriculum. In terms of reference to education for sustainable development, Victorian Framework relies heavily on perspective provided by its federal counterpart. Victorian Framework clearly states its education for sustainable development intention as

“Children become aware of the impact of the local environment, both physical and social, on their lives. They learn ways to care for the environment and contribute to a sustainable future.”(Department of Education and Training (Victoria), 2016)

This initial review of both Australian and Victorian ESD standards and recommendations for early education provides a good overview of various ESD practices recommended by national and state policymakers. However, it is also important to understand how these guidelines translate top-down to childcare centers and educators and to what degree these standards are deployed in practice. Understanding the extent of ESD in early education and educators' views, experiences and attitudes is crucial to develop a better understanding of this educational landscape. The aim of this current research is to evaluate to what extent ESD guidelines are deployed in daily education efforts at Victorian childcare centers. Research question posed in this thesis can be found in the subsequent section. The conception of the intervention is beyond the scope of this thesis.

Problem statement

The aim of this research thesis is to describe practices deployed by childcare centers in the State of Victoria, Australia. In addition, the thesis looks at educator's attitudes, knowledge and needs in relation to ESD. The lack of similar reviews and studies on ESD in early childhood education puts this current work in quite a unique position. Understanding ESD practices in Victoria's early childhood education and identifying gaps may enable policymakers, the state government, and relevant bodies to promote effective practices and close educational gaps. Studies have shown that education for sustainable development should start early in a child's development (Ardoin & Bowers, 2020; Pramling Samuelsson, 2011). It was also proven that educator's attitude has a significant influence on student's performance (Balakrishnan et al., 2020; Ulug et al., 2011). As a result, it is critical to comprehend not only educational practices, but also educators' attitudes, knowledge, and needs in relation to ESD. As a result, the thesis's research question is

What are the Victorian early childhood educator's practices, attitude, knowledge and needs in ESD?

As previously stated, the emphasis on the Australian state of Victoria stems from the researcher's residence in the state. The researcher's exposure to the early childhood education system has led to a focus on early childhood education. Sustainability is defined as meeting current needs without jeopardizing future generations' ability to meet their own. Sustainability has three main pillars: social, environmental, and economic, which are colloquially known as people, planet, and profits. This study, however, focuses on the environmental pillar of sustainability. Similarly, educators are defined as employees of early childcare centers who are directly involved with children, including in daily and teaching activities, for the purposes of this study.

Literature review

In 2014, UNESCO published ‘Shaping the Future We Want - UN Decade of Education for Sustainable Development (2005-2014)’ (Buckler & Creech, 2014), which evaluates efforts and analyses achievements, trends and challenges on ESD within the last decade. The report provides valuable direction for policymakers, educators, and other stakeholders in their efforts to advance understanding ESD. A large section of the report assesses the importance of ESD on early childhood care and education. This work serves as important evaluation tool and provides a synthesis of various efforts and practices. The report states that

“The early years are the foundation not only of later success in learning, but for a child’s capacity to participate effectively in a community, workplace, and society. It is in early childhood that the foundations of many of our fundamental attitudes and values are put into place, including attitudes and values towards learning. Access to quality pre-primary programmes and services places children in a better position to reach their highest potential and participate in the achievement of a more sustainable world.” (Buckler & Creech, 2014)

The UNESCO report emphasizes the role of early education in shaping sustainability habits. According to the case studies provided, sustainability education is critical in early childhood education. (Buckler & Creech, 2014). From an Australian perspective, such studies have been done in other Australian states, including New South Wales and Queensland. Yet, literature search has revealed that there is no prior evaluation of practices and degree of their deployment in early childhood education in the Australian state of Victoria. While Victoria remains largely unexplored in terms of ESD practices in early childhood education, the lack of prior evaluations supports the current study's thesis.

In New South Wales (NSW), Elliott and colleagues produced a report which offers a current and comprehensive response to the NSW Environmental Trust project brief titled “*Investigating early childhood education and care services environmental education programs.*” To identify ESD practices in early childhood education in New South Wales, the authors used a mixed research methodology comprising an extensive literature review followed by two qualitative methods. These methods included focus groups conducted with senior managers of the key peak early childhood organizations in New South Wales and phone interviews with individuals working in the early childhood education field. The literature review stage of the research was based on literature databases and websites to collate a range of published texts, including academic research from current and historical journals, books, and practitioner journals and publications focusing on the years 2007 to present. Relevant policies and other documents, including reports from peak organizations and governments, were also collated. For two qualitative methods, questions were open-ended. Key aspects of each interview were subsequently transcribed. The collected data was then clustered, revealing common themes and answers to given research questions. The authors of the report discovered that multiple engagement strategies are used throughout NSW to engage the early childhood education field, and that moving beyond engagement to facilitate change was accomplished through a combination of four common practices, namely digestible and repeated messaging, demystification of sustainability, building confidence, and developing contexts with multiple starting points (Elliott et al., 2016). The conclusion is that simple and consistent messaging is required to facilitate change in ESD education. Further, sustainability concepts are often

complex and convoluted, hence making sustainability clearer and easier to understand will result in a greater student confidence in the topic. The field revealed consensus around sustainability being contextualized to each service and community with multiple starting points. Multiple entry points make students aware that entry into the field of ESD can be done through a multitude of pathways, depending on local services and available resources.

Furthermore, the study found that developing effective ESD practices in early childhood education necessitates inclusion and child participation as key drivers in the educational process. Leadership and governance, and infrastructure, and physical change have been identified as elements that might enable or constrain change. The report falls short in quantifying the extent and effectiveness of ESD in early childhood education in New South Wales.

Professor Julie Davis of the Queensland University of Technology in Brisbane provided insights into early childhood education for sustainability from Queensland and Australian perspectives (Davis, 2012). According to Davis, early childhood education for sustainability is a distinct field of educational inquiry, and practice in Australia is less than 20 years old. Davis also reported that in Australia, initiatives that provide pedagogical support for the implementation of education for sustainable development are two reports mentioned previously, the international UNESCO report and the Australian government report (Buckler & Creech, 2014) and Australian education framework (Department of Education, 2009). Davis applies literature review methodology to identify policies and frameworks that support ESD in Queensland and Australia. Australian frameworks mentioned by Davis have already been described in this thesis. The study brings up some unique case studies deployed in Queensland. At the same time, Davis claimed that the situation in Queensland for early childhood education for sustainability has never been better. Much of this can be attributed to the Queensland Early Childhood Sustainability Network (QECSN), which is constantly engaging new members and providing new opportunities for engagement. Another leading voice in Queensland's early childhood ESD is an organization called C&K. In 2012, this association supported over 400 kindergarten communities in Queensland. While in 2010, C&K appointed a sustainability officer to oversee the deployment of sustainability and education for sustainability into various programs and practices. Among other initiatives, C&K also engaged in rethinking its outdoor play spaces to refocus attention on natural play spaces for children and emphasize the role of diverse natural environments in children's development. Davis argued that various ESD activities implemented in Queensland resulted in positive ESD for early childhood services in Queensland. These activities support systemic change for sustainability in early childhood education and can be easily transferable across other Australian states and territories.

Another area of change, as argued by Davis, is preservice teacher education. Traditionally, early childhood teacher education has lagged compared to other education sectors in embedding sustainability practices and concepts (Davis, 2012). However, this is changing rapidly. Davis cited one example in which eight universities in Queensland collaborated on a nationally funded project to integrate sustainability education into teacher education curricula. Another initiative, the so-called "*Lone Pine Project*," involves the Queensland University of Technology and Lone Pine Koala Sanctuary. This project aims to engage early childhood students as consultants to the architecture and design of a childcare center for the koala sanctuary.

A unique concept emerges from Davis’s study. Based on provided examples, it becomes clear that the success of ESD in early childhood education in Queensland is at least partially due to collaborative approaches and extensive stakeholder engagement.

Goolwa Children’s Centre in Goolwa South Australia have developed Environmental Sustainability Policy (Goolwa Children's Centre, 2017) to learn about sustainability through everyday practice. The center management believes that sustainable practices should be embedded into the daily operations of the service. This goal is accomplished by collaborating with the center's educators and staff, children, and their families to protect the environment and ensure a sustainable future for future generations. The policy document also proposes examples of daily sustainable practices.

Table 1. Examples of daily sustainable routine. (Goolwa Children's Centre, 2017)

Sustainable practice	Ideas
Recycling	<ul style="list-style-type: none"> • Recycling paper and garbage • Using recycled water
Gardening	<ul style="list-style-type: none"> • Planting vegetables, herbs, and fruits • Establishing a worm farm • Give food scraps to worms or the animals • Educating children and have them participate in “<i>garden to plate</i>” activities. Educating children about seed sprouting, weeding, vegetable gardens, cooking, etc.
Energy conservation	<ul style="list-style-type: none"> • Turn off lights and switches when not in use
Water conservation	<ul style="list-style-type: none"> • Using half flush on the toilet • Turning off the water when not in use • Encouraging shorter showers • Turning off tap when brushing teeth
Natural resources and equipment	<ul style="list-style-type: none"> • Caring for pets • Reusing natural materials – trees, blocks, boxes, etc. • Educating children in the natural decomposition cycle through exposure and participation in worm farms and composting food scraps • Educating children in how to care for pets, letting them actively participate in caring for the service pets

The guidelines that offer examples of sustainability education in the Victorian context are described in the Victorian Early Years Learning and Development Framework Practice – Principle Guide: 4 Equity and Diversity published by the Department of Education and Early Childhood Development of Victorian Government (Kennedy & Stonehouse, 2012). One of the guidelines in this framework document mentions “*encourage children as active participants for sustainability, influencing the quality of life now, and for future generations.*” Further, the document provides examples of how to address that guideline. Some provided examples of achieving this guideline are

“ongoing opportunities to connect with the natural environment within the setting and in the community through experiences for example with mud, sand, and water, gardening, growing vegetables, engaging in sustainability and conservation practices such as recycling or mulching and using local parks or reserves”, and “inviting Aboriginal elders as custodians of the land to share their knowledge of the local environment – for example, their knowledge of indigenous plants could inform native garden redevelopment plans and sustainability practices.”

The search for relevant documents that evaluate ESD in early childhood education from a Victorian perspective yielded no results. This identified gap opens a unique opportunity to address this problem. It is important to understand educators’ knowledge, attitude and needs because these factors are directly related and indicate how well educator will be able to teach and influence child’s development. Early childhood is a period when child’s early views, perspectives and habits are shaped. Hence, as shown above, it is essential to make sure that educators are appropriately equipped to execute their educational responsibilities.

Similar research has been previously performed in Korea, where researchers surveyed a total of 301 Korean early childhood teachers to investigate their perceptions and attitudes about education for sustainable development (Park, Kim, & Yu, 2016). The study concluded that the majority of surveyed teachers had a reasonable understanding of education for sustainable development gained from different knowledge sources. The respondents agreed that education for sustainable development in early childhood education was essential. However, 59% of respondents had not implemented any education for sustainable development programs or practices. Respondents that implemented education for sustainable development activities, limited these activities to circle-time discussions.

Research targeted specifically at the Spanish context of education for sustainable development in early childhood education concluded that it is crucial to include sustainable development in early childhood education, organize preliminary and continuous teacher training, and inform the complete educational community to enable sustainable development (Agut, Ull, & Minguet, 2014).

Theoretical framework

While many Education for Sustainable Development theories apply to this study, this thesis is concentrated on critical and Deweyan theories. Critical theory is an approach to social philosophy that focuses on reflective assessment and critique of society and culture to reveal and challenge power structures. Critical theories align with this research's central theme because this study aims to assess and evaluate education for sustainable development practices to reveal how federal and state guidelines and frameworks support or discourage education for sustainable development in Victorian early childhood centers. Due to thesis aims, critical theories are suitable for this analysis as they challenge ESD practices and their extent at early childhood centers throughout Victoria.

Critical theories embrace a variety of perspectives. Anderson in *“Transforming early childhood education through critical reflection”* (Anderson, 2014) argued that there is a growing tension in early childhood education in general between an emphasis on teacher-directed activities,

higher learning standards, evidence-based instructional methods, and maintaining dynamic, active, and integrated learning experiences for children. Anderson identified the pathways in existing values, theories, and beliefs about early childhood education can be transformed using critical theories. The author expressed her concern about the current direction of education. According to Anderson, the growing tension between competing interests or educational trends in early childhood education is prevalent. As such, early childhood education requires evaluation through a critical lens to prioritize and identify the most beneficial avenues for a child's educational development.

Wood and Hedges concluded that asking critical questions of the curriculum in early childhood education is essential to develop alternative theoretical frameworks for understanding how the curriculum can be considered alongside pedagogy, learning, play, and assessment. The study argued that practitioners, policymakers, and academics bring different views and perspectives to the curriculum. These different perspectives often come along with different cultural and sometimes even political agendas and aspirations for children's learning and development (Wood & Hedges, 2016).

Another study examined early childhood education from a critical theory perspective (Blaise & Ryan, 2019) and identified significant gaps in the curricula, as well as educators' knowledge. The authors of the study then shifted their focus to some of the most recent efforts to trouble and remake the early childhood curriculum, implying that more diversity in critical theorizing is required to dismantle the logic of dualisms inherent in Western education curricula. Critical theory deployed in this study illustrated that the diversification of educational curricula is a potential tool for understanding and developing a transformative curriculum, which directly translates to great student experiences. As such, critical theories play a crucial role in the development and challenges of contemporary early childhood practices.

Concepts developed by Freire showed that the teaching experience allows teachers to be formed and re-formed in the process (Freire, 1998). In contrast, the student that is taught forms in the process. Teachers experience transformative change while teaching, polishing, and re-forming their pedagogy, and expanding their professional teaching capacity. The more we seize educational opportunities, the more curious we become. Early education is so crowded with various concepts that particular fields need to compete for education time. Declaring one field of education more critical over another in early childhood education is unfair. The educational portfolio should be diversified. It may seem that specific fields gain more attention than others. Sustainability education in childhood centers seem to be undervalued and underappreciated. Once this disparity is created, it produces inequalities for educators, children, and their families. Engaging in critical reflection is the first step in prioritizing and transforming early childhood education. Educators are uniquely positioned to be change agents. Hence their opinions and perspectives are essential. In Freire's view, no substitute can replace teachers and educators in the process of knowing, just as educators cannot substitute for students (Freire, 1998).

Throughout his works, Brookfield stated that the critical theory of learning is inevitably also a theory of political and social learning (Brookfield, 2014, 2017). Linking education to the existing socio-political landscape is, to some extent, intriguing and confronting. This potential linkage between politics and education brings certain ethical aspects that need to be considered. For example, the Australian government, which is supportive of fossil fuels is also responsible for developing and reviewing educational curriculum in Australia, including early childhood education. Incidentally, Madsen argued that educators seek support in the form of policy

documents, but the same time they do not question the directions or guidelines defined in those policy documents (Madsen, 2013). The arguments by Madsen and Brookfield are interlinked and show the ultimate role of governments in support or opposition of educational reforms, including the ESD curriculum.

The outcomes of the critical reflection process are often complex and challenging for educators to deal with. This is mainly because along the critical reflection process educators come to realize that the answers to their questions are not straightforward or easy to deconvolute (Freire, 1998). These answers are even harder to come by when it comes to early childhood education. The critical reflection process in education is often so complex that it becomes a transformational journey for educators. During this journey, educators question the current status quo while searching for better answers or educational practices, and by doing so, they rediscover who they are, and uncover their needs to effectively facilitate their educational duty. This aspect of critical theory is deeply rooted in Deweyan theories (Greene, 1988). Transforming early childhood education and aligning with the concepts of sustainable development requires educators to better understand themselves and look at education and underlying environmental issues holistically as a complex and interlinked system. Argued by Greene, influencing the public debate in early childhood education is achievable only in the areas of debate that we are comfortable with (Greene, 1988). This also applies to early childhood sustainability education. Strengthening social commitment must start with educator's personal critical reflection journey and with detailed reflection on their attitude and needs (Greene, 1988).

Deweyan theories, referred to by Greene, are relevant to this current research. Dewey's theory is relevant to current research in two ways. Firstly, concepts and philosophies developed by Dewey are directly applicable to interview research, especially through Deweyan concepts of participation (Aldrich & Cutchin, 2013; Robertson, 1992). Separately, and more importantly, Dewey's theory is applicable to the current research problem from the perspective that Dewey believed that every action has a corresponding reaction and that our previous experiences directly influence how we deal with forthcoming situations (Herman & Pinard, 2015). This is directly related to behavior and attitude and can be applied to how early childhood education shapes and influences adult behaviors.

Dewey looked at experience and education and concluded that education and experience are one (Backe, 1999). Building understanding, or educating oneself, is done through prior conceptions and prior understandings, as well as experiences we accumulate throughout our lives. Today, this concept may seem like a common knowledge, but it was not obvious back in the 1870s. Dewey, and his colleagues, were the first ones to explain the educator's role in creating educational frameworks and learning experiences (Backe, 1999). Concepts developed by Dewey had an evident influence on works and theories developed by Schön, Rogers, Kolb, and many others (Dennison, 2012; Ord, 2012).

Research methodology

To get a detailed understanding of current ESD practices deployed in early childhood education in state of Victoria childcare centers, the research methodology focused on semi-structured interviews with Victorian childcare center educators.

The reasons for selection of interview methodology are that interview research gives an opportunity for detailed feedback, while semi-structured interviews open opportunities for follow-up questions, resulting in even better understanding of underlying reasons and complexities. However, interviews are generally more time-consuming compared to some other research methodologies, including surveys (Avidan, 2017). Hence, the participant group in the interview research was limited to a smaller group of respondents. Another reasons for selection of interview research was that interviews are, naturally, more interactive and allow for a detailed evaluation of education for sustainable development landscape in Victorian childcare centers (Avidan, 2017; DeJonckheere & Vaughn, 2019).

The researcher felt that among three major groups of interviews, which can be classified into structured, unstructured, and semi-structured interviews (Louise Barriball & While, 1994), structured interviews were best suited for this research work. Structured interviews are pre-determined questions that are verbally presented to the respondent, and as such, the inability to ask follow-up questions was a major disadvantage of this methodology. On the other hand, unstructured interviews were not suitable for this research either. Unstructured interviews are conducted with little or no preparation and take a form of a regular conversation, as such the main drawback would be that this type of research may not easily allow to compare collected responses. Thus, semi-structured interviews, which bring a combination of structured and unstructured interviews, provide advantages of both methodologies. In this form of an interview, the researcher prepares a list of pre-defined questions, but he can also ask follow-up questions to get deeper detail or explanation from the respondent based on his response (Adams, 2015; Louise Barriball & While, 1994). Being able to ask the follow up questions to better understand respondent's perceptions and reasoning was important to deconvolute traits and relationships that lead to answering the main research question posed in this thesis.

Once a group of respondents was identified, and their written consent was obtained, data collection process was initiated, and responses were collected from ten educators. While respondents' location, gender, or age are not factors in this study, they have been captured during the interview process to better understand nuances between age, as well as urban and rural educator's perspective (Table 2). Having this additional data enabled us to reach new conclusions in cases where interview results were inconsistent. Further, interviews were conducted both face-to-face, as well as via phone (Ryan, Coughlan, & Cronin, 2009). While researchers discovered that face-to-face interviews increased respondent engagement, they also proved to be significantly more time consuming due to the additional preparation and commute to the interview location. Remote Victorian towns might be challenging to perform in-person interviews. Hence, phone interview served the purpose. In addition, due to COVID-19 restrictions, six respondents preferred phone engagement, while four selected a face-to-face approach. Issues and challenges, as well as interview preparation guidelines, have been described elsewhere (Chandratre & Soman, 2020).

Developed interview questions can be found in Appendix of this thesis. These interview questions aim to collectively provide an overarching answer to the main research question in this thesis. Gathered data was transcribed and classified to answer given research questions.

To capture what practices were used by educators, below questions were asked:

- Can you describe educational practices used in your childcare center that support child's understanding of sustainable development and environmental awareness?
- Does your childcare center have a sustainability policy or educational guidelines for educators to teach sustainability practices to your pupils?

To help capture educator's attitude towards ESD, following four questions have been developed:

- What does education for sustainable development mean in your opinion?
- Roughly, how much attention daily is given to sustainable development initiatives compared to other educational activities in your childcare center?
- From your perspective, how important is it to develop sustainability habits in early child development?
- From your perspective, do you believe that time dedicated towards sustainability education in your childcare center is sufficient, and why?

In understanding educator's ESD knowledge, following two questions were coined:

- What other approaches could be developed both in your childcare center and other childcare centers throughout Victoria to better facilitate educational practices and awareness of the young generation regarding the importance of the sustainability in everyday life?
- Are you aware of any practices or case studies in early childhood education for sustainable development from other Australian states and territories or other countries of particular interest that could be adapted to the Victorian curriculum?

Finally, to understand educators' needs, following three questions were helpful:

- Do you believe that your training to become an educator sufficiently equips you to understand and teach various sustainability concepts in early childcare education, and why? Provide examples.
- Do you believe that educational guidelines developed by federal and state government organizations sufficiently address sustainability education in early child development in Victoria?
- Are there any other gaps in the Victorian curriculum regarding education for sustainable development that you are aware of?

In practice, many of the questions above, as well as follow up questions were allowed to develop understanding across several of these factors, rather than provide an answer to any particular field. Some of these questions, for example, helped to understand both attitudes and knowledge, while others focused on ESD practices and educator needs.

Methodological design

The methodological design of the study is described below. The advantages of this type of qualitative research method have already been described before. The majority of the research on this problem is based on a review of the literature. Hence, a series of interviews with early childhood educators in Victoria can reveal new information regarding the education for sustainable development in Victoria.

Interview design and preparation

The study used semi-structured interviews. The interviews began with the researcher explaining the purpose of this interview and the larger research project, as well as the confidentiality, voluntary nature, and other ethical considerations associated with this research and its findings. The introductory part of the interviews was followed by eleven pre-defined questions and potentially a series of supporting questions, depending on the respondent's initial reply. The introductory interview script and a list of pre-defined interview questions can be found in Appendix.

The purpose of this interview is to describe ESD practices used in select early childhood education centers and to understand educators' relevant knowledge, attitude and needs in relation to ESD education. For example, asking questions such as *what does education for sustainable development mean in your opinion? or do you believe that your training to become an educator sufficiently equips you to understand and teach various sustainability concepts in early child care education, and why?* allows to gain insights into educator's attitude and needs, while other questions allow to gain better understanding of ESD practices and educator's knowledge. All these four factors are main focus of this thesis. Understanding each one of these factors separately allow to deconvolute the ESD landscape of Victoria's early childhood education, and provide an answer to the main research question posed in this thesis, namely *what are the Victorian early childhood educator's practices, attitude, knowledge and needs in ESD?*

Data collection strategy

Data collection strategy revolved around cold calls and emails to childcare centers in Victoria, Australia to seek interest and availability of educators in undertaking the interview. In addition, identification of educators can also be made via LinkedIn research or word of mouth approach. Once ten respondents are identified, the researcher established their preferred way of conducting the interview, either face to face or via phone. While face-to-face interviews are preferred, COVID-19 restrictions and the distance between Melbourne, where the researcher is based, and the location of the childcare center may preclude them. The aim is to collect five datasets from educators based in urban areas and five from educators based in rural areas.

On the interview day, the researcher started by explaining the aim of this research and potential ethical considerations, followed by a list of pre-defined questions (Appendix). The interviews were recorded by the researcher for ease of data processing and analysis.

The total number of responses was ten. Five educators work in childcare centers in Melbourne, while the remaining five are based at rural childcare centers. All respondents worked in

different childcare centers. The interviews took place between September 2, 2021, and October 9, 2021. The majority of the interviews took place via phone or virtually via MS Teams. Only three educators were able or willing to meet in person due to the COVID-19 lockdown introduced by the Victorian Government. The average interview time was between 27 to 64 minutes. All respondents were unintentionally female. Detailed overview of respondents is presented in Table 2.

Data analysis

Once data was collected, the datasets were classified based on identified themes, including those related to practices, attitudes, knowledge and needs. The respondent names were omitted at this time. Collected data was then transcribed.

Following the transcription, the common themes were identified, and data was categorized in accordance to identified themes. The answers to pre-defined interview questions collectively allowed to build and reveal the answer to the research question in this thesis.

Qualitative content analysis methodology was deployed as data analysis methodology. Qualitative content analysis was deployed to identify the patterns that emerge from gathered text in ATLAS.ti software. The data was coded by analyzing each transcribed interview separately using the qualitative research tool, ATLAS.ti. This was done by dissecting subjective interpretation of the content resulting in a systemic process of data classification and content grouping into words, concepts, codes, themes, and patterns. Qualitative content analysis proved to be useful to quantify the relationship between all the grouped content.

The content analysis revealed common thesis themes, which were grouped and labelled based on identified ESD practices, educators' attitudes, needs and knowledge. Another, example includes grouping and labelling parts of interview that mentioned specific practices, such as gardening, or composting.

Coding approach deployed in this study was based on inductive coding, where codes are created based on the data content. The reason of using inductive coding was that it is an iterative process, and while it takes longer to code collected data, the process is more detailed and resulting outcomes are more thorough compared to outcomes of other coding approaches including deductive coding. Coding approach was also selected due to researchers' preference and alignment with his research style. The advantages and disadvantages of this methodology was described in more detail elsewhere (Chandra & Shang, 2019). Codes in inductive coding arose directly from collected data and were labelled as researcher progressed through the text. The advantage of inductive coding compared to deductive coding is that labels emerged naturally and are not predefined by the researcher. This, in return, allowed to reduce researcher's bias.

The collected dataset was read several times in order to get a general sense of the content. After a series of text reads, the first codes were assigned to statements and sections of text. The process was repeated a couple of times, each time adding new codes and revising the previous code description. Once the text was coded researcher made sure that coding is clear and that there are no inconsistencies. This step was followed by creating a code frame to group various codes. Two most common types of coding frames include flat and hierarchical coding frames. The advantages and disadvantages of both coding methodologies are described elsewhere

(Henry, Dymnicki, Mohatt, Allen, & Kelly, 2015; Skjott Linneberg & Korsgaard, 2019). The hierarchical code frame was used for this analysis because the researcher found it easier to derive analysis insights using this coding framework.

Validity and reliability in interview research

The current study's validity was assessed using feedback from other researchers working in this field, including the thesis supervisor and a psychology professor, as well as thesis reviewers. Most often semi-structured or unstructured interviews are deployed to generate the datasets required to better understand the problem and deconvolute answers to research questions (Alvesson, 2003; Bryman, 2016; Sykes, 1990). Education-related studies must be detailed enough and demonstrate specific research findings in order to make a meaningful contribution to the existing body of knowledge and improve understanding of underlying factors of influence. Readers' confidence in the validity and reliability of these studies is increased by rigor. Based on reviewers' feedback and comments in relation to this current work, the study is sufficiently detailed and shows degree of rigor to claim its validity and reliability. However, as Laura Goodwin and William Goodwin (Goodwin & Goodwin, 1984) believed and others (Yeung, 1997) supported, evaluating the quality of interview research is intrinsically difficult, and no universal framework or criteria exist to perform such evaluation of the validity and reliability of deployed qualitative research tools.

The major concern in validity and reliability in qualitative research revolves around the issue of trustworthiness of provided responses (Elo et al., 2014; Rolfe, 2006). The reliability in qualitative research refers to the application and appropriateness of selected research methodology, and the integrity of the research conclusions (Finlay, 2006; Noble & Smith, 2015). While independent reviewers' feedback concluded that selected research methodology is appropriate to answer research problem posed in this work, it is difficult to assess trustworthiness of provided responses. While reliability relates to researcher's influence and choices, validity in qualitative research is influenced by respondents. Scholars argue that validity refers to the correctness, and credibility of provided accounts, descriptions, or interpretation (Cho & Trent, 2006; Johnson, 1997; Yilmaz, 2013). There were no clear pathways to assess correctness or credibility of provided answers, as such researcher assumed that provided account were correct and true.

Finally, bias is broadly prevalent factor in qualitative research. Bias is inevitably impossible to completely control of remove given various social influences that affect the study (Collier & Mahoney, 1996; Podsakoff, MacKenzie, & Podsakoff, 2011). In certain cases, it might be possible to reduce the bias, but it is impossible to entirely remove it. Researcher believed that certain degree of bias, including bias which originates from initial researcher's hypotheses, beliefs and previous experiences, might have influenced his work and data analysis. It is also important to be aware that another researcher could interpret presented data differently.

Study limitations

It is worth outlining some potential limitations of the proposed research methodology. Interview research might provide a limited and biased opinion, in this case, a view of educators. Getting an educator's perspective allows us to evaluate what educators think, but not necessarily what they do in practice. Interviews can, however, indicate whether an educator has sufficient ESD

knowledge. Likely, the most appropriate way to pursue this type of study in a less biased way would be to visit the centers and observe. However, even researchers' presence may influence educators' behavior and actions. There are also certain limitations posed by COVID-19 pandemic where even pupil parents were not allowed into playrooms.

Another limitation of this study relates to a small group of respondents. Because of a narrow target group and a limited number of interviews, the data sample is not representative. However, the results of this small sample reveal some intriguing trends.

Participation and collaboration

The proposed research and associated methodology have a high degree of participation. The success of this research project relies on the involvement of the stakeholder group. Stakeholders of this research project are educators in early childcare education centers throughout the Australian state of Victoria. Participation is at the core of every interview-based research. Participants engaged in this research are asked to share their views and opinions on questions that collectively address the main research question. The overarching assumption and requirement for successfully applying the developed interview methodology is to keep participants engaged and ensure that their responses are unbiased. Since the researcher takes an active role as an interviewer in the data collection process, the researcher's role is to ensure that survey questions are clear, understood, and engaging. The researcher must also manage participants' expectations while keeping them engaged and encouraging them to openly participate in the interview in order to collect the necessary dataset to answer the research question. The presented research is limited because the sample used is not representative. Nonetheless, the results of this limited dataset reveal interesting trends and relationships that can be investigated further in future research.

Research ethics

This research was performed in Australia, and it was done as part of a formal requirement for the fulfilment of a master's program provided by Swedish University. As such, the research performed as part of this thesis adheres to the Australian Code for the Responsible Conduct of Research 2018 (National Health and Medical Research Council, Australian Research Council, & Universities Australia, 2018), and the Swedish Ethical Review Act (Ministry of Education and Cultural Affairs, 2003).

Proposed research brings a variety of ethical questions to consider before engaging a group of participants. Important ethical consideration is the issue of confidentiality. Different scholars have different opinions on this ethical challenge. Some believe that it is challenging to present research outcomes without identifying respondents that provided input into the research. Other scholars believe that participants' confidentiality is an integral part of every study that involves participation and that it is the researcher's responsibility to ensure that confidentiality. In the given type of research methodology used in this study, where participants were asked to answer the predefined questions, keeping confidentiality is relatively straightforward. Since some respondents would like interview results to be shared with them once the study concludes, they might be given an option to share their email address voluntarily.

There is also responsibility for the researcher to ensure that research data and research outcomes are used in the way it was stated to be used. Hence, the researcher cannot use research data in any other way or for any other purpose than that stated at the beginning of the interview process. Sharing research data with a third party is also potentially unethical.

The researcher's responsibility is that if research outcomes are published or otherwise uploaded on the public domain, i.e., master thesis publication, discussion, and conclusions are unbiased and present the research outcomes in the most transparent way possible.

Organizing face-to-face interviews with respondents during the COVID-19 outbreak may be seen as unethical. However, prior research shows that establishing this connection with respondents during the interview process had a positive impact on their responses. The researcher's role is to ensure that safety standards are met and that participants are comfortable during research. The interviews were conducted both face-to-face, and via phone. Respondents were asked about their preferred interview methodology. Most of the ethical concerns identified above must be addressed through clear communication and consent forms signed by participants before engaging in this research.

There are also potential ethical considerations coming out of this research. Namely, the impact of the outcomes of this research on future policies or legislations, as well as future ESD practices deployed by childcare centers in the state of Victoria. It is important to understand that this current research aims to identify existing practices and educational gaps, but the interpretation of results by policymakers or educators is their sole responsibility.

Interviewed respondents have been made aware of possible ethical issues and considerations prior to initiating the interview. All ten interviewed respondents have signed a consent form agreeing to participate in the study and giving permission to use collected data for the purpose of this study. Template of the consent form can be found in the Appendix.

Results

The questions and answers that follow attempt to capture the most common trends among each of the responses, as well as to describe outliers and answers or practices that proved to be distinct from practices used by other interviewed educators. Finally, where responses and trends differ between urban and rural areas, these differences are also described.

Six out of ten respondents were familiar with education for sustainability development concepts and broadly understood sustainability. These six respondents were familiar that sustainability goes beyond environmental sustainability and extends to economic and societal aspects. One respondent acknowledged both environmental and societal sustainability and their integral role in ESD. This respondent was familiar of economic sustainability and related concepts but in the past did not consider it equally important to two other pillars. Remaining three respondents considered education for sustainability development synonymous with environmental sustainability and failed to acknowledge two other sustainability pillars. Despite good understanding of different sustainability pillars, provided answers revolved predominantly around environmental sustainability.



Figure 1. Pictures of educational gardens taken by the author during interview visits at two different early childcare centers in Victoria.

The educational practices deployed in state of Victoria early education centers revolved around gardening practices (Figure 1). Major activities in this space involve planting vegetables and herbs. It also involved educating student about the reuse of organic food scraps as compost and plant growth. Compositing was potentially the most widespread educational practice taught by interviewed educators. Educators not only taught children about the benefits of compositing but explained the natural decomposition cycle. Establishing worm farms was also mentioned, but this practice was mainly deployed in rural areas of the state. Recycling paper and other trash was another common educational practice. Recycling was stated often by educators in both rural and urban areas. Most educators revealed teaching their pupils about broader recycling and reuse concepts. While some of these activities have been limited to teaching sorting and disposal of rubbish to appropriate containers. At the same time, other educators went a step forward to use some of this garbage to create novel items and pieces of art. For example, using old plastic bottles to make practical household items, tools, and plant containers. Educators also often cited concepts of water scarcity and emphasis on teaching children about water capture and reuse for gardening and other household activities.

Energy and water conservation are two concepts deeply rooted in the Australian mentality. Australians are very aware of issues related to water and energy and the importance of having those two essential resources in everyday life. Conservation of resources in Australia is taught starting from early childhood. In Victorian early education centers, energy conservation teaches children to switch off the light, television, air conditioning, or other electronic devices when not used or when children leave the space and using half-flush for the toilets and encouraging to turn off the tap water when not used. For those not familiar with the Australian context, the so-called dual flush toilet is broadly deployed across Australia and is often mandated in new buildings by legislations. This further emphasizes the importance of water and education about water conservation in a water scarce continent.

Some practices that were unique to rural settings include caring for pets and reusing materials, i.e., reusing plastic bottles to make plant containers, reusing old boxes for various storage purposes, etc. As explained by some educators, the rural nature of these practices is likely since animals, especially farm animals, are part of rural life, and reuse is more common in rural areas, whereas early childhood educators in urban areas are more focused on segregation and recycling.

Animal husbandry is a common source of income in rural areas. Children living in rural Australia are often exposed to cattle, sheep, horses, and other livestock. While they often learn about caring for animals at home, these practices are also commonly practiced at educational establishments. Caring and conservation of native Australian animals is also an essential aspect of early childhood education in Australia. A widespread practice in Australia is to establish local animal sanctuaries. These sanctuaries and animal farms serve to familiarize Australians with native and non-native animals. While they can be compared to smaller versions of zoos, these sanctuaries and farms are less formal and established in a natural environment adjacent to national parks or other wildlife areas. Animal sanctuaries and farms can be composed of native or farm animals or a mix of both. Animal sanctuary indicate that the place will have more native animals and will be set in a natural setting.

In contrast to animal farms, the Victorian Government operates the most prominent and arguably best-maintained wildlife sanctuaries through Zoos Victoria and Parks Victoria. These

establishments are top-rated family and educational excursion destinations. The Royal Botanic Gardens Victoria and other botanic gardens throughout the state are leaders in plant conservation through biodiversity research, programs to protect rare and threatened plants, and habitat research. The gardens offer education and visitor programs and day excursions for early childcare centers and primary school groups.

Finally, three interviewed educators could not name any practice that is particularly enforced in their educational activities. According to these respondents, this is because the educational curriculum does not emphasize sustainability education. Two educators believed that early childhood education is not the right moment to introduce sustainability education practices. According to these educators, while these practices are important, they should come at later stages of education.

Table 2. Overview of interviewed educators.

Educator	Childcare center	Gender	Age	Years of experience in childcare education	Location	Time commitment towards activities in sustainability education
Respondent 1	Childcare center A	Female	28	5	Urban	Seldom
Respondent 2	Childcare center B	Female	43	21	Urban	Often
Respondent 3	Childcare center C	Female	39	12	Rural	Often
Respondent 4	Childcare center D	Female	56	26	Urban	Almost always
Respondent 5	Childcare center E	Female	43	21	Rural	Often
Respondent 6	Childcare center F	Female	59	41	Rural	Never
Respondent 7	Childcare center G	Female	31	8	Rural	Almost always
Respondent 8	Childcare center H	Female	26	3	Urban	Seldom
Respondent 9	Childcare center I	Female	62	31	Urban	Sometimes
Respondent 10	Childcare center J	Female	34	7	Rural	Often

In the subsequent question, respondents were asked to estimate the daily commitment expressed on a five-point Likert scale, including almost always, often, sometimes, seldom, never. The responses are presented in Table 2. Responses are divided into those from rural and urban areas. Additionally, the data captured in Table 2 is presented in chart in Figure 2.

According to these responses in Table 2, the attitude towards sustainability education is very positive. Based on the above, the average commitment to deploy ESD in daily activities by educators leans towards often.

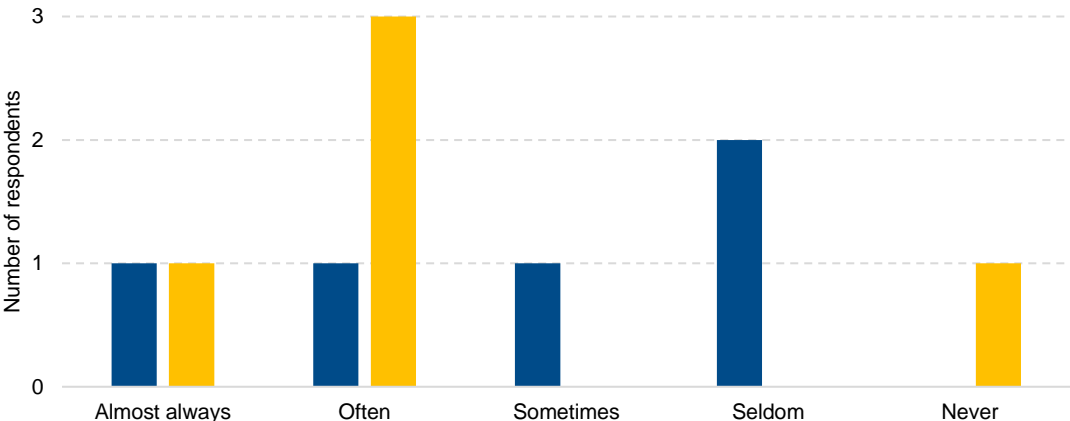


Figure 2. Attitudes towards deployment of ESD in daily and teaching activities in urban (blue) and rural (yellow) early education centers in Victoria.

Only five out of ten interviewed educators confirmed having a sustainability policy or educational guidelines for educators to teach sustainability practices in the early childhood centers in Victoria. While these policies or guidelines are present at select early education centers, their scope, extent, and number of practices are limited. Educators confirmed that these documents are generally between three to five pages long and often do not provide sufficient detail for educators to deploy or enforce these practices. In addition, respondents have mentioned that these documents often exist to show that the center meets standards and educational compliance, but little emphasis is given to these documents otherwise.

Seven respondents pointed to the documents already mentioned in this thesis, including national frameworks such as *Belonging, Being & Becoming – The Early Years Framework* (Department of Education, 2009), *Educators’ Guide to the Early Years Learning Framework for Australia* (Department of Education and Training, 2011), and the *Victorian Early Years Learning and Development Framework* published by the Department of Education and Training (Victoria) and the *Victorian Curriculum and Assessment Authority* (Department of Education and Training (Victoria), 2016). The educators believed that these documents provide a sufficient guidance to education for sustainable development in Australian early childhood education as they are often more detailed than internal childcare center guidelines and policies.

As part of this question, further online research has been performed to identify how many Victorian centers have their sustainability guidelines and policies. This desktop research involved an online search for such policies available on the center website. The research examined over twenty early childhood education centers that have not been already part of this

study and attempted to locate the document. The online search identified eleven out of twenty early education centers with education for sustainability development guidelines available on their websites. Since presenting these requirements online is not required, the number of early childhood education centers with such policies or guidelines is likely to be significantly higher. Many centers may keep these documents for internal use.

Seven respondents confirmed that developing sustainability habits during early childhood development is essential. The reasoning behind it is that it is more effective to develop new habits and practices at the early stage of a child's development. One of the educators also clarified further by stating, "*it is easier to learn than to unlearn*". Same time interviewed educators expressed their view that the current curriculum and policies are less supportive of education for sustainable development in early childhood education than ESD focus given at latter stages of education. The majority of ESD in Australia, including state of Victoria, is implemented at the later stages of education, starting from primary schools through high schools to tertiary education.

Some interviewed educators also emphasized the urgency for sustainability education in Victoria, Australia, and globally in the face of growing environmental concerns, climate change, increasing widespread pollution, and gender and economic inequality. Further, two respondents reiterated that strong guidelines and governmental support is crucial to ensure that early childhood educators are not left on their own.

Three out of ten interviewed respondents were against introducing another educational field, as they see ESD as separate not integrated to all fields, into the already busy early childhood education curriculum. Their arguments revolved around the fact that early childhood development should focus on more essential and "*down-to-earth*" practices, including developing social skills and interaction with other children, developing speaking skills, walking, and reading. These three respondents also contended that incorporating ESD into early childhood education is unlikely to be beneficial because children at this age do not understand or care about underlying environmental issues. Same time these three respondents confirmed the importance of ESD at later education stages of child development.

Three interviewed respondents believed that the current time dedicated towards sustainability education in their childcare center is sufficient. These respondents correlate to early childcare centers in Victoria, which already spend a significant amount of time towards education for sustainable development, as presented in **Fel! Hittar inte referenskölla.** and Figure 2. Their reasoning was that the current ESD is incorporated in other educational activities rather than thought on its own and more emphasis on ESD could compromise other educational activities and fields. Same time all three respondents acknowledged the importance of education for sustainable development and the need for starting the process with early childhood education.

Four respondents argued that the time currently dedicated towards education for sustainable development in Victorian early childhood education centers is insufficient. The primary reason behind this argument is that the educational curriculum should be flexible and open to accommodate most urging educational and social needs. Four interviewed educators believed that one of the most urgent needs of our times is addressing the environmental crisis, climate change, growing pollution, as well as gender and racial inequality. As such, education for sustainable development should be given a priority in the Victorian curriculum to build a more inclusive and sustainable future.

As mentioned before, the last group of respondents believed that there is no place for sustainability education in early childhood education in Victoria and Australia. These respondents argued that children do not understand the issue, its extent, or importance at this early development stage, so time dedicated to educating them is wasted. In addition, two respondents believed that sustainability education should be closely linked to ethical perspective, which is often not shaped in children at this early age. As such, this group of three respondents supposed that education for sustainable development is essential and should be fostered at later stages of education.

Among the various approaches, the most frequently mentioned are establishing sustainability awards (some respondents referred to them as sustainability champion awards or sustainability protector awards) to recognize sustainability efforts led by students, visits to zoos and local animal sanctuaries, a greater emphasis on gardening and plant growth activities, and developing a better understanding of limited resources and the need for the circular economy. Another activity that was broadly stated was building capacity and understanding around food waste. Six respondents confirmed that current activities and practices are sufficient, but they just need to be allocated more time.

An obvious disparity emerged in the following question. Early childhood educators, roughly younger than 40 years of age, have been taught various education for sustainable development practices during their training at university and other educational institutions. According to this group, education for sustainable development and, more broadly, sustainability has been an integral part of their training. These educators also believe that their training was adequate and sufficiently equipped them with concepts, theories, and practical skills. The examples given by this group of respondents were closely aligned with their responses in the previous question, where they were asked to list educational practices related to sustainability education. Examples include gardening practices and plant growth, recycling, energy, water preservation, etc. In addition, this group of respondents argued that their education and training provided them detailed theories and understanding of sustainability concepts to teach these concepts to their students effectively.

The second group among respondents comprised of educators older than 40 years of age. These educators claimed that their limited training and understanding of underlying concepts constraint them in terms of what they can convey to their students. Their training was provided decades ago when sustainability and education for sustainable development were not part of the educational curriculum.

Based on these two types of responses, it seems that the problem may lie in adequate training. Since early childhood education has relatively recently incorporated education for sustainable development, older educators may require additional upskilling to convey sustainability concepts to their students.

Four respondents believed that current educational guidelines, while brief are sufficiently addressing sustainability education in early child development in Victoria. These four respondents argued that Victorian early childhood education is diverse and attempts to cover multiple educational and developmental fields. As such, it is well balanced and provides sufficient educational experience in relation to sustainability.

Three educators assumed that these guidelines did not adequately describe the problem and did not provide any guidance in terms of potential practices or educational experiences that could

be used to educate and raise awareness about environmental issues, climate change, or broadly understood sustainability concepts. These respondents further argued that the educational curriculum should be more flexible and adaptive towards current urging needs. In their opinion, one of the major, if not the primary, issues our world is facing right now is related to climate change and planetary wellbeing. As such, education for sustainable development should be given more priority over other educational and developmental areas.

When asked about sustainability practices used in other states or territories, the respondents could not identify any unique practices deployed in other Australian states or territories or provided examples that were very location-dependent and not easily transferable to Victoria. For example, one educator mentioned an educational practice used in an early childhood education center in Queensland. Children were taught about coral reefs and the importance of reef ecosystems to ocean life and various food chains. Another example described by the educator was a visit to a landfill to make children aware of the extent of waste produced by modern society and illustrate where our waste ends. The practice from this second example relies on education facilities being close to a local landfill.

Interviewed Victorian educators were aware of some ESD practices used by their colleagues overseas. Interesting examples of environmental practices in early childhood education came from Europe and the USA. In the USA, early childhood educators implement various educational practices, including bird identification class, visits to a lake or a pond and use nets to collect insects, crayfish, and other small animals and transfer them to an aquarium in the childhood center to observe their behavior and growth, and examination of insect specimen with magnifying lenses and other tools. European practices known to interviewed Victorian educators were primarily concerned with water and energy conservation. One example mentioned in this context was a visit to a local water treatment plant to briefly go through steps to turn wastewater into recycled water.

Among the major gaps and educator needs identified by respondents, the most common issue is a lack of lifelong education for educators themselves. Sustainability is a dynamic and rapidly changing field as such educators' skills and knowledge must follow. Furthermore, there is a lack of detailed guidelines for implementing various practices, as well as little effort by education training providers to equip future early childhood educators with concepts, theories, and practices to implement education for sustainable development in their professional engagements.

Discussion

The discussion deserves an early clarification. While semi-structured interviews allow to collect valuable and detailed responses, due to time constraints, interviews are often limited to a small number of respondents. These issues have already been explained in previous chapters of this thesis. Ten respondents are generally regarded as a sufficient number for interview research, and the number of respondents is large enough to reduce response bias and randomness and deconvolute trends. According to a report by the Victorian Skills Commissioner (Victorian Skills Commissioner, 2020), in December 2020 in Victoria, approximately 50,000 people were working in the Early Childhood Education and Care (ECEC) sector, including 15,000 kindergarten and pre-school education staff and 34,000 childcare services staff. As such, the number of respondents approached in this study is insignificant, yet the number proved sufficient to deconvolute some common trends and indicators.

Analysis of synergies

Result analysis has shown certain discrepancies in education for sustainable development in early childhood centers in Victoria, Australia. These discrepancies can be categorized into two main classes urban versus rural differences and educator's age discrepancies. Firstly, the results have shown that educators in rural areas in Victoria spend more time towards education for sustainable development. This can be explained by the fact that rural areas are generally more exposed to the natural environment and major activities in these areas revolve around farming and animal husbandry. Developing an early understanding of gardening and interaction with animals is generally helpful and part of everyday life. This is also supported by prior research elsewhere in the world. Geographic location is an essential factor when considering ESD and its effectiveness (Leicht, Heiss, & Byun, 2018; Nguyen, 2018).

Secondly, the age discrepancies can be explained by changing educational landscape in Victoria and Australia and educational reforms that have been introduced over the years. Older educators may often lack the understanding of environmental concepts. As such, they are not prepared to educate pupils. The problem is not purely limited to the lack of understanding. The older educators are often not equipped with appropriate toolkits and are not familiar with various exercises that can be introduced to shape this environmental awareness from early childhood. This agrees with another research performed by Spiropoulou et al. (Spiropoulou, Antonakaki, Kontaxaki, & Bouras, 2007) who concluded that the implementation rate of environmental programs in Greek primary schools is relatively low despite teachers' interest in the issues due to a lack of familiarity with methodological approaches, which promote environmental matters. The importance of educators' training was emphasized before by scholars in the UK (Firth & Winter, 2007). This discovered knowledge gap is directly related to Dewey's theories. As stated by Dewey our knowledge and understanding are influenced by our past education and experiences. Since educators above roughly 40 years of age did not receive sufficient sustainability training, they find it difficult to teach these concepts.

On the other hand, the younger generation of educators received training covering these educational aspects. The youngest educators often recall some of these activities being introduced during their early childhood education, followed by sustainability education in

primary school, high school, and often at the tertiary level. As a result, their understanding of education for sustainable development and climate change issues is solid, allowing them to communicate and educate others. While critical theory perspective presented in a previous study (Blaise & Ryan, 2019) revealed significant and more generic gaps in the curricula and educators' knowledge, many authors have discussed these intergenerational knowledge gaps and the selectivity of practices and traditions (Brandt, Bürgener, Barth, & Redman, 2019; Stössel, Baumann, & Wegner, 2021; Sund & Wickman, 2011).

Thirdly, the results section deconvolute another significant discrepancy – educators' belief in sustainability education at this early age. While most educators expressed urgency for education for sustainable development, a limited number of respondents argued that introducing another educational field into the already busy early childhood education curriculum is unnecessary. These educators argued that early childhood development should prioritize essential skills such as socialization and interaction with other children, as well as the development of speaking abilities. This respondent group believed that introducing complex ESD concepts, which are often based on ethical understanding, should come later, at the primary school level, and continue through high school and university education. The educators argued that ESD education is likely of little benefit because children at this age cannot comprehend or do not care about underlying environmental issues. Despite performing an extensive literature review, no previous sources agree with concerns expressed by this group of educators. These attitudes towards education for sustainable development at early childcare education might be driven by insufficient educator's knowledge and lack of prior experience with sustainability education. Freire applied critical theory to argue that the teaching experience allows teachers to be formed and re-formed in the process (Freire, 1998), as such insufficient knowledge or lack of previous experience in the field may lead to educator's criticism. In addition, this educators' belief aligns with finding of Anderson, which were described earlier in this thesis (Anderson, 2014). Deploying critical theory, Anderson found that evolving early childhood education causes growing between emphasis on teacher-directed activities, evidence-based instructional methods, higher learning standards posed by governmental institutions, and maintaining dynamic, active, and integrated learning experiences for children. These views of limited group of educators also resonates with critical theory analysis deployed by Wood and Hedges, where authors argued that questioning the appropriateness of curriculum in early childhood education is crucial to develop alternatives (Wood & Hedges, 2016). Wood and Hedges also argued that different stakeholders, including educators, policymakers and academics bring different perspectives to the educational curriculum which often may misalign. These different perspectives are result of differences in cultural and sometimes even political agendas and aspirations for children's learning and development (Wood & Hedges, 2016).

Moreover, interview results show misalignment with previous studies including UNESCO report (Buckler & Creech, 2014), and other scholars (Elliott et al., 2016) by contradicting the benefits of ESD in early childhood education. The opinions presented by this group of educators contradict the previous body of evidence and are likely a result of misunderstanding or misconception of ESD. This, again, is likely due to a lack of appropriate level of educator training and vague national and state ESD frameworks and guidelines. However, these view and attitudes can be destructive. As shown by researchers in Turkey (Ulug et al., 2011) and Malaysia (Balakrishnan et al., 2020), teachers have a great influence on their students, as the perception and attitude of the teacher can greatly influence students' views.

A small group of interviewed educators were aware of UNESCO's efforts in promoting education for sustainable development in early childhood education. These efforts have been presented in earlier chapters of this thesis. These interviewees believed that given international efforts and clear evidence on the benefits of ESD in early childhood education, Australian and Victorian governments are making effort to implement and promote ESD in early childhood education. This view is aligned with views presented by Brookfield who argued that the critical theory of learning is inevitably interlinked with existing socio-political landscapes (Brookfield, 2014, 2017). As such, education, social aspects, and political landscape become inseparable and influence each other.

According to one respondent, Australians tend to believe that the local setting is so different and unique that practices and outcomes developed elsewhere are often foreseen as not applicable locally due to these differences. While a single respondent shared this particular view, a study by Forsey et al. (Forsey, Broomhall, & Davis, 2011) provides perspective on the respondent's statement.

Limitations and improvements

The interview question "*Do you believe that your training to become an educator sufficiently equips you to understand and teach various sustainability concepts in early childcare education, and why?*" revealed an apparent disparity between educators younger than roughly 40 years of age and educators older than 40 years of age. The disparity between these two age groups was predominantly in terms of sustainability training provided to both groups as part of their formal preparation to work with children. According to Davis, beginnings of the early childhood education for sustainability dates back to less than two decades in Australia (Davis, 2012), which explains knowledge disparity between age groups and provides a certain degree of context to this issue.

Based on interview responses from both groups, it becomes evident that the problem lies in providing adequate training. While the focus on education for sustainable development has emerged as an important educational field only recently, older educators could benefit from additional upskilling to be able to convey sustainability concepts adequately and clearly to their students. As argued by Freire, training enables teachers to be formed and re-formed (Freire, 1998). Many early childhood educators received their formal training decades ago when sustainability and education for sustainable development were not part of the educational curriculum. According to Deweyan theories, lack of previous experiences in the field of sustainability education shaped teachers' capacity to learn and influence the capability to convey these concepts to students (Dewey, 1986). In contrast, younger early childhood educators believed that they had been appropriately prepared to educate sustainability concepts. According to this group of respondents, their university or other formal training sufficiently covered concepts of sustainability education, equipping this group of educators with knowledge and tools to educate others.

Training discrepancies between older and younger educators have been identified as a significant gap. However, this gap is at same time relatively easily addressable by introducing further training, workshops, and educational seminars.

Interviewed respondents also identified more generic training as a gap. Australia's education and educational curriculum is dynamic and often undergoes adjustments and minor changes. To keep up and stay relevant, educators claimed that they should be provided with additional training to make sure that they remain relevant and that their skills are aligned with the educational curriculum. This aligns with outcomes of the UK study performed by Firth and Winter who argued about the importance of educators' training and the need for lifelong learning opportunities for educators (Firth & Winter, 2007). Lifelong learning could be deployed to ensure that educators are equipped with the latest scientific and educational tools to deliver their work. Such lifelong learning activities may have to be deployed as an integral part of the profession to ensure that educators upskill themselves and that upskilling among educators is consistent throughout the industry. While there seem to be educational gaps between younger and older educators, there is also an obvious need for continuous upskilling and lifelong learning practices through the industry.

Further, some respondents identified gaps in government guidelines. The current educational guidelines could be improved and address education for sustainable development in more detail. On the other hand, a percentage of respondents believed that the content of these documents sufficiently addresses the field. Generally, interviewees recognize that these government-issued documents can be improved and more detailed to better guide educators. Out of this group, some educators argued that government guidelines should focus more on practical aspects and provide appropriate tools for educators. This group of respondents also believed that the Victorian educational curriculum could benefit from more flexibility to become more adaptive to accommodate changing environmental and social landscape. Educators, as previously identified by Madsen, seek support in the form of policy or guidelines documents, but they do not question the directions or guidelines defined in those policy documents (Madsen, 2013). Addressing the problem of gaps in government guidelines might be as simple as addressing communication gaps between stakeholder groups, in particular between educators and government agencies and departments.

This research has identified a series of gaps and areas for further improvement. However, there might be other gaps that have not been identified through a series of semi-structured interviews. Further research may reveal these remaining gaps providing a more complete image of education for sustainable development in Victorian early childhood education centers.

Answering research question

This research thesis posed a single research question. Interviews with early childhood educators in Victoria, Australia, revealed the answer to the research question. *What are the Victorian early childhood educator's practices, attitude, knowledge and needs in ESD?*

Results revealed some indicators and commonalities in practices deployed across Victorian early childhood education centers. The most common ESD approaches include gardening, taking care of animals, and energy and water-saving practices. Further, respondents also deploy recycling and reuse practices to teach their pupils the basics of the circular economy. Very few differences in deployed practices can be seen between urban and rural areas of Victoria. Although, the intensity of these practices may differ depending on geography. For example, it becomes clear from analyzing interview responses that gardening and taking care of animals

are emphasized in rural areas, and for obvious reasons. Rural areas are more focused on farming and animal husbandry.

On the other hand, focus on water-saving practices was more prevalent in urban areas. Literature research revealed that educational practices used in Victoria do not differ much from those deployed in other Australian states, which could lead to the conclusion that Victorian educators are knowledgeable as they deploy the same or similar educational practices as educators in other Australian states. Further, these practices are quite common around the globe, as revealed by the literature review. Although, in some parts of the world, these practices may differ slightly and be tailored for local realities or specific local problems.

The discussion section of this thesis also argues that all practices deployed in Victoria are very routine-oriented and focus on learning by doing. Prior research argues that learning by doing approaches to early childhood education are most effective, especially in early development stages. Educators explain the reasoning behind every practice, and pupils practice it themselves. This can be connected to Deweyan philosophy. John Dewey argued that human experiences – past, present, and future – influence the capacity to learn and shape our future behavior based on our past experiences. Dewey also argued that education is a social process and allows us – humans – to grow (Dewey, 1986).

The interview research also revealed that the current Victorian early education curriculum is inclusive of education for sustainable development. One could argue that current practices sufficiently reflect the sustainability issues, although there are two critical factors to consider. Some educators believe that climate change is an urgent issue, and as such, it requires an increased focus on sustainability education. Interview responses are closely aligned with previous study, which identified several gaps in the education for sustainable development curriculum (Blaise & Ryan, 2019). These views are also in agreement with previous critical theory based research deployed by Anderson who argued that educational curricula is more demanding than ever for both educators and students, while different and often conflicting agendas make it difficult to navigate and deliver meaningful outcomes (Anderson, 2014). This study also revealed that educators are applying critical reflection lens and are aware of the issues (Wood & Hedges, 2016). However, the missing step is to communicate their concerns to decision makers. This is where previously mentioned top-down approaches could meet with bottom-up actions to meet in between and deliver the best outcomes for both stakeholders' group, while remembering that the most important stakeholders in this process are students and their needs. Mazon et al., discussed the advantage of top-down and bottom-up approach in sustainability education (Mazon, Pereira Ribeiro, Montenegro de Lima, Castro, & Guerra, 2020). In addition, research performed in other education fields revealed advantages of mixed top-down and bottom-up approaches, allowing to reach certain consensus between stakeholders and create a “win-win” situation (Skedsmo & Huber, 2019).

In contrast, other educators believed that sustainability education should be introduced later in the educational curriculum and that the current early childhood education curriculum is already demanding. However, these views are in disagreement with previous research (Ulug et al., 2011). Secondly, there might be a lack of more profound understanding of sustainability issues and a lack of tools to teach education for sustainable development, which is in agreement with views presented by other scholars (Blaise & Ryan, 2019). This knowledge gap is especially prevalent amongst older educators. This is likely due to the educational gaps covering these

essential topics in the past. As discussed before, this knowledge gap can be closed through additional educator training, workshops, and seminars.

It is evident from the above, as well as from the results and discussion section, that Victorian educators selected for this study have knowledge and experience in facilitating ESD. The attitude of the group was mixed, but the source of mixed attitude was not towards the sustainability concepts and the need for ESD in general but more towards their belief whether ESD should start this early. In terms of educators needs it seems that they are provided with a clear guideline, tools, and other support to facilitate ESD. However, there may be a need for additional skill development and closing the educational gap among educators.

As emphasized throughout the text, this small group of educators interviewed as part of this research is not representative. Reader should have in mind that while this study provides some common trends deconvoluted based on the answers provided by respondents, these trends should be treated as indicators and not be extrapolated into broader Victorian or Australian context.

Conclusions

This research topic was initially selected for personal reasons and curiosity, as it appeared that sustainable development education was lacking in Victoria. My son is attending one of the early childcare centers in the Melbourne metropolitan area. Understanding if the Victorian practices would equip him with appropriate basic understanding and sustainable behavior, which will continue developing throughout his life. As argued by John Dewey, humans tend to shape their future behavior based on their past experiences. For this reason, it is essential to start education for sustainable development as early as possible. This statement aligns well with research cited in this thesis and findings presented by UNESCO.

After researching this topic deeper and speaking with early childhood educators in Victoria, my perspective changed. The initial assumption about the state of education for sustainable development in early childhood education centers in Victoria was changing rapidly as this research progressed.

Based on collected data, it became clear that there might be certain gaps in education for sustainable development in Victoria's early childhood education, mainly driven by a lack of appropriate educator training or educator's personal beliefs. In most cases, practices and tools used in Victoria to teach education for sustainable development are compatible with methods deployed around the world. In addition, the time spent on sustainability education is significant. While this research did not investigate global statistics, in terms of time spent on education for sustainable development in other early childhood education centers globally, it is hard to distinguish how Victoria compares to other states or countries. This could be one area for future development.

It is also impressive to see Victorian educators' effort into teaching their pupils about important sustainability aspects, despite very little governmental support. Both Victorian and Federal governments provide very few guidelines in terms of education for sustainable development in early childhood education centers. It is believed that given the scale and urgency of climate change, governments have an essential and overarching role to play. There is an apparent reason education for sustainable development should be approached in a unified and transparent manner with supporting guidelines and additional training for educators.

The research question developed for this work have already been answered in detail in the previous section. However, it is worth to quickly relate to it. While there might be specific knowledge, attitudes and needs, this interview-based research revealed that while the current Victorian early education curriculum is inclusive of education for sustainable development, most of the work is actually driven by educators themselves. The practices they deploy do not differ from practices deployed globally by their colleagues and are broad enough to ignite sustainability consciousness starting from early education.

The activities in education for sustainable development at early childhood education centers focus on topics related to gardening, caring for animals, recycling and reuse, waste segregation, energy, and water conservation. These practices are generic and non-restrained by geographical or local setting. Literature review revealed that activities deployed in Victoria are also commonly deployed in other countries around the globe. In this dynamic and ever-changing educational landscape, educators may need more focus on skills building and lifelong learning. This research revealed basic practices deployed by Victorian educators to teach education for

sustainable development starting from early childhood. It is believed that this work is unique and that a similar evaluation of the state of Victorian education for sustainable development focusing on early childhood education has never been performed before. This research is non-exhaustive, and gathered information opened further questions and areas for future study. For example, it would be interesting to interview government officials responsible for defining the educational curriculum. It would also be worthwhile to explore how the sustainability education gap among the older group of educators can be addressed. Another option for future research would be quantitative analysis and comparison of the state of education for sustainable development in Victoria to other Australian states and internationally.

Future work

The scope of this work was to identify education for sustainable development practices deployed in early childhood education centers in Victoria, Australia, and to understand the extent and importance of education for sustainable development in the state. While the study scope was limited, there are multiple potential avenues to continue this study in the future. Some of these potential future work scopes are presented in this chapter.

The study revealed mixed opinions in terms of importance and current emphasis to promote sustainable development in early childhood education in Victoria. Future work could focus on better understanding the origin of these contrary views. Better understanding these contrary perspectives on reasons for supporting or opposition for education for sustainable development in early childhood education could allow developing more tailored training experiences for early childhood educators.

Generally, the respondents believe that education for sustainable development in early childhood education in Victoria is sufficiently implemented. The dynamic nature of education for sustainable development and continuously changing perspectives may require ongoing revisions to both overarching federal and state guidelines. Proposing extension to these guidelines supported by a series of case studies and potential educational practices could better support educators in designing and deploying environmental experiences to develop sustainability habits in children starting from a very young age. This work would likely require engagement with a larger group of educators and potentially with state departments and agencies responsible for establishing the curriculum to ensure that developed guidelines aligns with current and future curriculum.

The study revealed a gap in skills and understanding of sustainability education in educators of 40 years of age and above who completed their training decades ago. This training gap could be addressed by implementing continuing education practice in sustainability education for educators that need such additional training or refresher. This training could be developed as a separate training experience. Because sustainability education in early childhood education is not as complex as at later education states, such training could have a limited scope and could be delivered in a relatively brief period. Future work could focus on developing and implementing such training, starting with underlying assumptions, including in-depth knowledge gaps identification and what educators expect to gain from such training.

While the semi-structured methodology deployed in this study revealed trends and perspectives on education for sustainable development in early childhood education centers in Victoria, the respondent group was limited. Future work could build on this initial study and extend the respondent group to other Victoria's early childhood education centers and educators. This could be delivered through an online interview methodology, where a link to an online questionnaire could be shared with all early childhood education centers in the state. The state of Victoria is relatively large and reaching remote and rural centers is often both difficult and time-consuming. The survey could address this. In addition to sending a link to the early childhood education center, it could be beneficial to ask the center administration to distribute the survey among their educators so that different perspectives and opinions from the same center can be collected and compared. While surveys are limited in response depth and detail, they are a powerful methodology to reach a large group of respondents. Performing a state-

wide survey could reveal a number of new and unique trends, as well as make the study's results significant and representative.

Lastly, the perspective on education for sustainable development in Victoria may differ depending on the stakeholder groups. The extension of this work could focus on another group of stakeholders, including either government agencies and policymakers responsible for establishing the curriculum, children, or parents of children. This exercise, while time-consuming, could reveal different trends and opinions among the stakeholders and allow to build a complete image of education for sustainable development in early childhood education centers in Victoria.

References

- Adams, W. C. (2015). Conducting Semi-Structured Interviews. In *Handbook of Practical Program Evaluation* (pp. 492-505).
- Agut, M. P. M., Ull, M. A., & Minguet, P. A. (2014). Education for sustainable development in early childhood education in Spain. Evolution, trends and proposals. *European Early Childhood Education Research Journal*, 22(2), 213-228. doi:10.1080/1350293X.2013.783299
- Aldrich, R. M., & Cutchin, M. P. (2013). Dewey's Concepts of Embodiment, Growth, and Occupation: Extended Bases for a Transactional Perspective. In M. P. Cutchin & V. A. Dickie (Eds.), *Transactional Perspectives on Occupation* (pp. 13-23). Dordrecht: Springer Netherlands.
- Alvesson, M. (2003). Methodology for close up studies – struggling with closeness and closure. *Higher Education*, 46(2), 167-193. doi:10.1023/A:1024716513774
- Anderson, E. M. (2014). Transforming Early Childhood Education through Critical Reflection. *Contemporary Issues in Early Childhood*, 15(1), 81-82. doi:10.2304/ciec.2014.15.1.81
- Ardoin, N. M., & Bowers, A. W. (2020). Early childhood environmental education: A systematic review of the research literature. *Educational Research Review*, 31, 100353. doi:<https://doi.org/10.1016/j.edurev.2020.100353>
- Avidan, A. (2017). The Role and Contribution of Narrative Interviews in Educational Research. *American Journal of Educational Research*, 5(4), 419-427.
- Backe, A. (1999). Dewey and the Reflex Arc: The Limits of James's Influence. *Transactions of the Charles S. Peirce Society*, 35(2), 312-326.
- Balakrishnan, B., Tochinai, F., & Kanemitsu, H. (2020). Perceptions and Attitudes towards Sustainable Development among Malaysian Undergraduates. *International Journal of Higher Education*, 9(1), 44-51.
- Blaise, M., & Ryan, S. (2019). *Engaging with critical theories and the early childhood curriculum*. New York: Routledge.
- Brandt, J.-O., Bürgener, L., Barth, M., & Redman, A. (2019). Becoming a competent teacher in education for sustainable development. *International Journal of Sustainability in Higher Education*, 20(4), 630-653. doi:10.1108/IJSHE-10-2018-0183
- Brookfield, S. D. (2014). Foundations of Critical Theory. *Advances in Developing Human Resources*, 16(4), 417-428. doi:10.1177/1523422314543819
- Brookfield, S. D. (2017). *Becoming a Critically Reflective Teacher*: Wiley.
- Bryman, A. (2016). *Social Research Methods*: Oxford University Press.
- Buckler, C., & Creech, H. (2014). *Shaping the Future We Want - UN Decade of Education for Sustainable Development (2005-2014)*. Retrieved from 7, place de Fontenoy, 75352 Paris 07 SP, France:
- Chandra, Y., & Shang, L. (2019). Inductive Coding. In Y. Chandra & L. Shang (Eds.), *Qualitative Research Using R: A Systematic Approach* (pp. 91-106). Singapore: Springer Singapore.
- Chandratre, S., & Soman, A. (2020). Preparing for the interviewing process during Coronavirus disease-19 pandemic: Virtual interviewing experiences of applicants and interviewers, a systematic review. *PLOS ONE*, 15(12), e0243415. doi:10.1371/journal.pone.0243415
- Cho, J., & Trent, A. (2006). Validity in qualitative research revisited. *Qualitative Research*, 6(3), 319-340. doi:10.1177/1468794106065006
- Collier, D., & Mahoney, J. (1996). Insights and Pitfalls: Selection Bias in Qualitative Research. *World Politics*, 49(1), 56-91. doi:10.1353/wp.1996.0023
- Davis, J. M. (2012). Early childhood education for sustainability: Queensland and Australian perspectives. In *International Dialogue about Early International Trends in Early Childhood Education for Sustainability and Green Growth*.

- DeJonckheere, M., & Vaughn, L. M. (2019). Semistructured interviewing in primary care research: a balance of relationship and rigour. *Family Medicine and Community Health*, 7(2), e000057. doi:10.1136/fmch-2018-000057
- Dennison, P. (2012). Reflective practice: The enduring influence of Kolb's Experiential Learning Theory. 2012, 1(1). doi:10.21100/compass.v1i1.12
- Department of Education and Training. (2011). Educators' Guide to the Early Years Learning Framework for Australia.
- Department of Education and Training (Victoria). (2016). Victorian Early Years Learning and Development Framework.
- Department of Education, E. a. W. R. (2009). Belonging, being & becoming: early years learning framework for Australia. In. [Canberra]: Department of Education, Employment and Workplace Relations,.
- Dewey, J. (1986). Experience and Education. *The Educational Forum*, 50(3), 241-252. doi:10.1080/00131728609335764
- Elliott, S., McCrea, N., Newsome, L., & Gaul, J. (2016). Examining environmental education in NSW early childhood education services: A literature review with findings from the field. *University of New England*.
- Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative content analysis: A focus on trustworthiness. *SAGE open*, 4(1), 2158244014522633.
- Finlay, L. (2006). 'Rigour', 'Ethical Integrity' or 'Artistry'? Reflexively Reviewing Criteria for Evaluating Qualitative Research. *British Journal of Occupational Therapy*, 69(7), 319-326. doi:10.1177/030802260606900704
- Firth, R., & Winter, C. (2007). Constructing education for sustainable development: the secondary school geography curriculum and initial teacher training. *Environmental Education Research*, 13(5), 599-619. doi:10.1080/13504620701659079
- Forsey, M., Broomhall, S., & Davis, J. (2011). Broadening the Mind? Australian Student Reflections on the Experience of Overseas Study. *Journal of Studies in International Education*, 16(2), 128-139. doi:10.1177/1028315311407511
- Freire, P. (1998). *Pedagogy of freedom: ethics, democracy and civic courage / Paulo Freire ; translated by Patrick Clarke ; foreword by Donaldo Macedo ; introduction by Stanley Aronowitz*. Lanham, Md. ; Oxford: Rowman & Littlefield Publishers.
- Goodwin, L. D., & Goodwin, W. L. (1984). Are validity and reliability "relevant" in qualitative evaluation research? *Evaluation & the health professions*, 7(4), 413-426.
- Goolwa Children's Centre. (2017). Environmental sustainability policy.
- Greene, M. (1988). *The dialectic of freedom*. New York: Teachers College Press.
- Henry, D., Dymnicki, A. B., Mohatt, N., Allen, J., & Kelly, J. G. (2015). Clustering Methods with Qualitative Data: a Mixed-Methods Approach for Prevention Research with Small Samples. *Prevention Science*, 16(7), 1007-1016. doi:10.1007/s11121-015-0561-z
- Herman, W. E., & Pinard, M. R. (2015). Critically Examining Inquiry-Based Learning: John Dewey in Theory, History, and Practice. In *Inquiry-Based Learning for Multidisciplinary Programs: A Conceptual and Practical Resource for Educators* (Vol. 3, pp. 43-62): Emerald Group Publishing Limited.
- Johnson, R. B. (1997). Examining the Validity Structure of Qualitative Research. *Education 3-13*, 118, 282.
- Kennedy, A., & Stonehouse, A. (2012). Victorian Early Years Learning and Development Framework Practice – Principle Guide: 4 Equity and Diversity. *Department of Education and Early Childhood Development*.
- Leicht, A., Heiss, J., & Byun, W. J. (2018). *Issues and trends in education for sustainable development*: UNESCO Publishing.
- Louise Barriball, K., & While, A. (1994). Collecting data using a semi-structured interview: a discussion paper. *Journal of Advanced Nursing*, 19(2), 328-335. doi:<https://doi.org/10.1111/j.1365-2648.1994.tb01088.x>

- Madsen, K. D. (2013). Unfolding Education for Sustainable Development as Didactic Thinking and Practice. *Sustainability*, 5(9), 3771-3782.
- Maidou, A., Plakitsi, K., & Polatoglou, H. M. (2019). Knowledge, Perceptions and Attitudes on Education for Sustainable Development of Pre-Service Early Childhood Teachers in Greece. *World Journal of Education*, 9(5), 1. doi:10.5430/wje.v9n5p1
- Mazon, G., Pereira Ribeiro, J. M., Montenegro de Lima, C. R., Castro, B. C. G., & Guerra, J. B. S. O. d. A. (2020). The promotion of sustainable development in higher education institutions: top-down bottom-up or neither? *International Journal of Sustainability in Higher Education*, 21(7), 1429-1450. doi:10.1108/IJSHE-02-2020-0061
- Michalos, A. C., Creech, H., McDonald, C., & Kahlke, P. M. H. (2011). Knowledge, Attitudes and Behaviours. Concerning Education for Sustainable Development: Two Exploratory Studies. *Social Indicators Research*, 100(3), 391-413. doi:10.1007/s11205-010-9620-9
- Ministry of Education and Cultural Affairs. (2003). *The Ethical Review Act*. Stockholm, Sweden.
- National Health and Medical Research Council, Australian Research Council, & Universities Australia. (2018). *Australian Code for Responsible Conduct of Research*. Commonwealth of Australia, Canberra.
- Nguyen, T. P. (2018). Education for Sustainable Development in Vietnam: exploring the geography teachers' perspectives. *International Research in Geographical and Environmental Education*, 27(4), 341-356. doi:10.1080/10382046.2017.1366204
- Noble, H., & Smith, J. (2015). Issues of validity and reliability in qualitative research. *Evidence Based Nursing*, 18(2), 34. doi:10.1136/eb-2015-102054
- Nousheen, A., Yousuf Zai, S. A., Waseem, M., & Khan, S. A. (2020). Education for sustainable development (ESD): Effects of sustainability education on pre-service teachers' attitude towards sustainable development (SD). *Journal of Cleaner Production*, 250, 119537. doi:<https://doi.org/10.1016/j.jclepro.2019.119537>
- Ord, J. (2012). John Dewey and Experiential Learning: Developing the theory of youth work. *Journal of Youth & Policy*, 108.
- Park, E., Kim, H., & Yu, S. (2016). Perceptions and Attitudes of Early Childhood Teachers in Korea About Education for Sustainable Development. *International Journal of Early Childhood*, 48(3), 369-385. doi:10.1007/s13158-016-0176-y
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2011). Sources of Method Bias in Social Science Research and Recommendations on How to Control It. *Annual Review of Psychology*, 63(1), 539-569. doi:10.1146/annurev-psych-120710-100452
- Pramling Samuelsson, I. (2011). Why We Should Begin Early with ESD: The Role of Early Childhood Education. *International Journal of Early Childhood*, 43(2), 103. doi:10.1007/s13158-011-0034-x
- Robertson, E. (1992). Is Dewey's Educational Vision Still Viable? *Review of Research in Education*, 18, 335-381. doi:10.2307/1167303
- Rolfe, G. (2006). Validity, trustworthiness and rigour: quality and the idea of qualitative research. *Journal of advanced nursing*, 53(3), 304-310.
- Ryan, F., Coughlan, M., & Cronin, P. (2009). Interviewing in qualitative research: The one-to-one interview. *International Journal of Therapy and Rehabilitation*, 16(6), 309-314. doi:10.12968/ijtr.2009.16.6.42433
- Skedsmo, G., & Huber, S. G. (2019). Top-down and bottom-up approaches to improve educational quality: their intended and unintended consequences. *Educational Assessment, Evaluation and Accountability*, 31(1), 1-4. doi:10.1007/s11092-019-09294-8
- Skjott Linneberg, M., & Korsgaard, S. (2019). Coding qualitative data: a synthesis guiding the novice. *Qualitative Research Journal*, 19(3), 259-270. doi:10.1108/QRJ-12-2018-0012
- Spiropoulou, D., Antonakaki, T., Kontaxaki, S., & Bouras, S. (2007). Primary Teachers' Literacy and Attitudes on Education for Sustainable Development. *Journal of Science Education and Technology*, 16(5), 443-450. doi:10.1007/s10956-007-9061-7

- Stössel, J., Baumann, R., & Wegner, E. (2021). Predictors of Student Teachers' ESD Implementation Intention and Their Implications for Improving Teacher Education. *Sustainability*, 13(16), 9027.
- Sund, P., & Wickman, P.-O. (2011). Socialization content in schools and education for sustainable development – I. A study of teachers' selective traditions. *Environmental Education Research*, 17(5), 599-624. doi:10.1080/13504622.2011.572156
- Sykes, W. (1990). Validity and reliability in qualitative market research: A review of the literature. *Journal of the Market Research Society*.
- Ulug, M., Ozden, M. S., & Eryilmaz, A. (2011). The Effects of Teachers' Attitudes on Students' Personality and Performance. *Procedia - Social and Behavioral Sciences*, 30, 738-742. doi:<https://doi.org/10.1016/j.sbspro.2011.10.144>
- Victorian Skills Commissioner. (2020). Sector Snapshot: Victoria's Early Childhood Education and Care (ECEC) Sector.
- Wood, E., & Hedges, H. (2016). Curriculum in early childhood education: critical questions about content, coherence, and control. *The Curriculum Journal*, 27(3), 387-405. doi:<https://doi.org/10.1080/09585176.2015.1129981>
- Yeung, H. W.-c. (1997). Critical realism and realist research in human geography: a method or a philosophy in search of a method? *Progress in Human Geography*, 21(1), 51-74. doi:10.1191/030913297668207944
- Yilmaz, K. (2013). Comparison of Quantitative and Qualitative Research Traditions: epistemological, theoretical, and methodological differences. *European Journal of Education*, 48(2), 311-325. doi:<https://doi.org/10.1111/ejed.12014>



DEPARTMENT OF PEDAGOGICAL CURRICULAR AND PROFESSIONAL STUDIES

Appendix

Interview communication

Dear interview participant,

Thank you for your help in this research. The purpose of this research is to describe practices deployed by childcare centers in Victoria, Australia. The outcomes of this interview research will be used to identify educational gaps and propose areas for future improvement. This research is geographically constrained to the State of Victoria.

By completing this interview, you will help identify education for sustainable development practices deployed in early childhood education in Victoria. You will be asked to answer eleven questions related to ESD practices used in your childcare center. There might also be additional follow-up questions. On average, this interview should take about 30 minutes to complete.

All respondents in the study will remain anonymous, and no information collected will be referred to a specific respondent. All collected data will be managed and analyzed by Dr. Bartłomiej Kolodziejczyk. In the case of a publication or presentation of the research results, no personal information will be disclosed.

Your participation in this research is voluntary, and no financial compensation is provided for your participation. You can stop the interview process at any time. There are no identified risks related to participation in this study.

You must be 18 years of age or older to participate in this research and be an educator at one of Victoria's early childhood education centers. Do not hesitate to contact Dr. Bartłomiej Kolodziejczyk at guskoloba@student.gu.se, if you have any questions or concerns about this research.

Thank you for your support,

Bartłomiej Kolodziejczyk

Interview questions

1. What does education for sustainable development mean in your opinion?
2. Can you describe educational practices used in your childcare center that support child's understanding of sustainable development and environmental awareness?
3. Roughly, how much attention daily is given to sustainable development initiatives compared to other educational activities in your childcare center?
4. Does your childcare center have a sustainability policy or educational guidelines for educators to teach sustainability practices to your pupils?
5. From your perspective, how important is it to develop sustainability habits in early child development?
6. From your perspective, do you believe that time dedicated towards sustainability education in your childcare center is sufficient, and why?
7. What other approaches could be developed both in your childcare center and other childcare centers throughout Victoria to better facilitate educational practices and awareness of the young generation regarding the importance of the sustainability in everyday life?
8. Do you believe that your training to become an educator sufficiently equips you to understand and teach various sustainability concepts in early childcare education, and why? Provide examples.
9. Do you believe that educational guidelines developed by federal and state government organizations sufficiently address sustainability education in early child development in Victoria?
10. Are you aware of any practices or case studies in early childhood education for sustainable development from other Australian states and territories or other countries of particular interest that could be adapted to the Victorian curriculum?

11. Are there any other gaps in the Victorian curriculum regarding education for sustainable development that you're aware of?

Consent form template

Consent Form

Section 1: Contact and project details

Researcher’s full name: Bartlomiej Piotr Kolodziejczyk
Researcher’s contact details: guskoloba@student.gu.se
Supervisor’s name: Hanan Innabi
Contact details: hanan.innabi@gu.se
Project title: Educators’ Perspective on Education for Sustainable Development in Childcare Centers in Victoria, Australia

Section 2: Participant consent

In signing this form, I confirm that:

- I have read the Participant Information Sheet, and the nature and the purpose of the research project has been explained to me. I understand and agree to take part.
I understand the nature of my involvement in the project.
I understand that I may not directly benefit from taking part in the project.
I understand that I can withdraw from the project at any stage and that this will not affect my status now or in the future.
I confirm that I am over 18 years of age.
I understand that while information gained during the project may be published, I will not be identified and my personal results will remain confidential, unless required by law.
I understand that I will be audio recorded, video recorded, and/or photographed during the project.
I understand that the recordings and/or photographs will be stored, and used purely for the purpose of this project, and that the researcher is the only person to have access to it.

Participant’s signature Printed name Date

Section 3: Researcher’s certification

I have explained the study to the participant and consider that he/she understand what is involved.

Researcher signature Printed name Date