



An Assessment of the Implementation of Forest Curriculum in a Private School in Abu Dhabi, UAE

تقييم تنفيذ مناهج الغابات في مدرسة خاصة في أبو ظبي، الإمارات العربية المتحدة.

by

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of the requirements for the degree of
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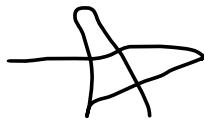
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Abstract

This study determines the effectiveness of the implementation of the forest curriculum in a private pre-school in Abu Dhabi, UAE. This dissertation aims to evaluate the positive impact of nature-based learning in private pre-schools, to determine the challenges of implementation, and to propose effective implementation strategies with regard to the forest curriculum. Employing a mixed-methods approach, quantitative data were collected through a questionnaire distributed to a cohort of 42 teachers. Additionally, qualitative data were gathered through an interview with the principal of the school to provide insights into the lived experiences of the participants. This study contributes valuable insights to the field of curriculum evaluation, offering a holistic understanding of the impact of the forest curriculum on students. In addition, with the UAE moving towards sustainability, there has come a need to support nature curricula, which are represented by forest schools. Forest schools can have a positive impact on the environment and on sustainability by fostering a deep connection with nature, promoting environmental awareness, instilling sustainable practices, and contributing to the overall well-being of individuals and communities. The research findings underscore the importance of curriculum alignment with 21st-century skills and the need for ongoing professional development to support educators in navigating integrated forest school approaches. Further research involving a larger and more diverse sample is recommended to confirm and extend these initial results. The implications with regard to integrating the forest curriculum in government schools should be discussed.

Keywords: Forest Schools, Nature-based learning, Sustainability, Learner-centred approach, Problem-Centred Approach.

خلاصة

تحدد هذه الدراسة مدى فعالية تطبيق منهج الغابات في مرحلة ما قبل المدرسة الخاصة في أبو ظبي، الإمارات العربية المتحدة. تهدف هذه الورقة إلى تقييم الأثر الإيجابي للتعلم القائم على الطبيعة في أحد مدارس ما قبل المدرسة الخاصة، وتحديد تحديات التنفيذ واقتراح استراتيجيات التنفيذ الفعالة لمناهج الغابات. تم استخدام نهج الأساليب المختلطة عن طريق توزيع استبيان وإجراء مقابلة. تم جمع البيانات الكمية من خلال استبيان تم توزيعه على مجموعة مكونة من 42 معلمًا. بالإضافة إلى ذلك، تم جمع البيانات النوعية من خلال مقابلة مع مدير المدرسة لتقديم نظرة ثاقبة للتجارب الحية للمشاركين. تساهم هذه الدراسة برؤى قيمة في مجال تقييم المناهج الدراسية، وتقدم فهمًا شاملاً لتأثير مناهج الغابات على الطلاب. ومع توجه دولة الإمارات نحو الاستدامة، ظهرت الحاجة إلى دعم مناهج الطبيعة، والتي تتمثل في مدارس الغابات. يمكن أن يكون لمدارس الغابات تأثير إيجابي على البيئة والاستدامة من خلال تعزيز الارتباط العميق مع الطبيعة، وتعزيز الوعي البيئي، وغرس الممارسات المستدامة، والمساهمة في الرفاهية العامة للأفراد والمجتمعات. تؤكد نتائج البحث على أهمية مواءمة المناهج الدراسية مع مهارات القرن الحادي والعشرين والحاجة إلى التطوير المهني المستمر لدعم المعلمين في التعامل مع مناهج مدارس الغابات المتكاملة. يوصى بإجراء مزيد من البحث باستخدام عينة أكبر وأكثر تنوعًا لتأكيد هذه النتائج الأولية وتوسيع نطاقها. وينبغي مناقشة الآثار المترتبة على دمج مناهج الغابات في المدارس الحكومية.

الكلمات المفتاحية: مدارس الغابات، التعلم القائم على الطبيعة، الاستدامة، النهج الذي يركز على المتعلم، النهج الذي يركز

على المشكلات

Dedication

I dedicate this research endeavour to my family, whose unwavering support and encouragement have been my constant motivation throughout this academic journey. Their belief in my abilities and their enduring love have provided the foundation upon which this research stands.

To my mentors and advisors, thank you for your guidance, wisdom, and patience. Their expertise and insights have shaped my thinking and enriched the quality of this study. I am grateful for the valuable lessons and the opportunities for growth that they have provided.

This work is also dedicated to my friends and colleagues who have shared in the challenges and triumphs of the research process. Their camaraderie and shared enthusiasm have made this academic pursuit not only intellectually rewarding but also enjoyable.

Lastly, I dedicate this research to countless individuals who may benefit from the findings of this study. May the knowledge generated contribute to the betterment of our shared community and serve as a small step towards positive change.

In loving memory of my first mentor, Dr. Keith Bradshaw, whose guidance, wisdom, and encouragement shaped my journey as a researcher. This research is dedicated to him as a tribute to his enduring legacy and profound influence on my academic and personal development.

With heartfelt gratitude,

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Table of Contents

Chapter 1: Introduction	1
1.1 Background	1
1.2 Purpose Statement	2
1.3 Aim and Objectives	2
1.3.1 Objectives	2
1.4 Rationale for the Study	3
1.5 Significance of the Study	3
1.6 Structure of the Dissertation	4
Chapter 2: Literature Review	6
2.1 Introuction	6
2.2 History of Forest Schools	6
2.3 Curriculum Components of Forest Schools	11
2.3.1 Outdoor Experiences as the Foundation	11
2.3.2 Child-centred Exploration	12
2.3.3 Hands-on Learning and Practical Skills	13
2.3.4 Development of Practical Skills	13
2.3.5 Interdisciplinary Learning Opportunities	14
2.4 Benefits of Applying the Forest School Curriculum	15
2.5 Theoretical Framework	18

2.6	Methods of Evaluating Forest Schools.....	19
2.6.1	Observation and Documentation	19
2.6.2	Child Assessment	20
2.6.3	Parent and Caregiver Feedback	21
2.6.4	Teacher and Staff Assessment.....	22
2.7	Challenges of Applying a Forest Curriculum	23
2.8	Application of Forest Curriculum in the United Arab Emirates	25
2.8.1	The Unique Climate and Environment.....	25
2.8.2	Existing Initiatives in Nature-based Education	26
2.9	Chapter Summary.....	27
Chapter 3: Methodology.....		1
3.1	Introduction	1
3.2	Methodological Approach.....	1
3.3	Ethical considerations	2
3.4	Sampling.....	3
3.5	Data Collection.....	5
3.5.1	Questionnaire.....	5
3.5.2	Interview.....	5
3.6	Data Analysis	6

3.6.1	Questionnaire.....	6
3.6.2	Interview.....	7
3.7	Summary	9
Chapter 4: Findings		10
4.1	Introduction	10
4.2	Overview of the Research Aim and Methodology	10
4.3	The Impact of Nature-Based Learning on Child Engagementand Learning Outcomes	10
4.4	Challenges in Implementing Nature-Based Learning Policies and Forest Curricula	14
4.5	Overcoming the Challenges of the Forest Curricula	15
4.5.1	Parental Involvement.....	15
4.5.2	Teacher Training	15
4.5.3	Continuous Evaluation	16
4.5.4	Student Safety.....	16
4.5.5	Education Curricula.....	17
4.5.6	Available Resources	18
4.6	Summary of the Findings	18
4.7	Conclusion.....	19
Chapter 5: Discussion and Recommendations		20

5.1	Introduction	20
5.2	Quantitative Data Collection	20
5.3	Qualitative Data Collection	22
5.4	Positive Factors	24
5.5	Limitations	24
5.6	Recommendations for Further Research	25
5.7	Conclusion.....	25
References		27
Appendices		37

List of Figures

Figure 1: Methodological Approach (Modified from Cohen et al., 2017).....	2
Figure 2: Ages of Questionnaire Respondents	4
Figure 3: Gender of Questionnaire Respondents	4
Figure 4: Nature-based or Forest School Learning Increases Self-esteem and Self-confidence.	12
Figure 5: Nature-based or Forest School Learning Improves Social Skills.....	12
Figure 6: Nature-based or Forest School Learning Contributes to the Development of Language & Communication Skills.	13
Figure 7: Nature-based or Forest School Learning Improves Motivation & Concentration. ...	13
Figure 8: Nature-based or Forest School Learning Improves Physical Motor Skills – Fine & Gross.....	13
Figure 9: Nature-based or Forest School Learning Contributes to Children’s Knowledge & Understanding of the Environment.	13
Figure 10: Challenges of Forest Schools.....	14

Chapter 1: Introduction

1.1 Background

One of the recent developments in educational methods is forest schooling which brings together both traditional academic processes and experience of the natural environment. Dating from the beginning of the 20th century, this idea has undergone intercontinental and cultural transformations in the last two decades (Haskell et al., 1992). Many countries around the world, including the UAE, have recognized the importance of environmental education in promoting a sense of responsibility towards nature and sustainable practices. Initiatives could include integrating environmental topics into the national curriculum, organizing outdoor learning experiences, and raising awareness of local ecosystems (Almheiri, 2015).

There are many existing studies that have discussed forest curriculum schools and their impact such as; Connecting International Schools to Nature (Charlotte, 2020), Sustainable Development and Social Responsibility (Al-Masri et al., 2020), The Importance of Forest School and the Pathways to Nature Connection (Cudworth et al., 2021), Developing a Relationship with Nature and Place: The Potential Role of Forest School (Harris, 2021), Early Childhood Environmental Education and Current Trends (Öztürk, 2021), Psychological Benefits of Attending Forest School for Preschool Children (Sella et al., 2023), and The Emirates at 2050: Balancing Development and Environmental Stewardship (Burt et al., 2023). However, there is a discernible need for forthcoming studies to delve into the effects of forest-based curriculum on children in the Gulf Area generally and in the UAE specifically. In addition, while some research, such as the study by Dawson (2020) on connecting international schools to nature in Dubai and the work of Elhacham et al. (2021) on temperature

patterns along an arid coastline, has focused on forest schools in Dubai, there is a notable absence of studies conducted in other Emirates, particularly Abu Dhabi.

1.2 Purpose Statement

Over the past two decades, private schools in the UAE have experienced many changes. However, attitudes toward the natural environment have only been examined since the most recent inspection framework was implemented (Ministry of Education, 2017). With the ultimate goal of facilitating a forest curriculum in UAE schools, this thesis mainly focuses on establishing best practice approaches and making recommendations for schools. The research questions are aimed at exploring the advantages of forest schools, the current challenges facing the enabling of the forest curriculum, and how they could be overcome.

To achieve the ultimate goal of facilitating the forestry curriculum in schools in the UAE, these research questions focused primarily on identifying the best practice model and for making recommendations for schools.

1.3 Aim and Objectives

The purpose of the research is to understand strategies for the implementation of a nature-based learning policy in private pre-schools, to determine the challenges associated with implementation, and to propose effective implementation strategies with regard to a forest curriculum.

1.3.1 Objectives

1. To evaluate the impact of nature-based learning on child engagement and learning outcomes in terms of both academic and socio-emotional aspects.

2. To identify and analyse the challenges faced by the school in implementing nature-based learning policies and forest curricula, and how these can be overcome.

1.4 Rationale for the Study

The rationale for this study stems from the limited adoption of such curricula on the part of private schools in the UAE. By assessing a forest curriculum, we will provide a valuable insight into several aspects related to environmental education and its role with regard to maintaining sustainability which is a key UAE interest for the future (Al-Masri et al., 2020). This study provides insights that can be used to improve curriculum evaluation, and to provide a holistic understanding of the impact of a forest curriculum on students. In addition, with the marked decline in recent generations in opportunities for children to engage in risky outdoor play, there comes the need for encouraging action to support such opportunities (Cox et al., 2018). In addition, we provide recommendations for government educational systems to support the integration of outdoor and environmental education in terms of the mainstream curricula, thereby ensuring that sustainability is a core component of the education system.

1.5 Significance of the Study

It is important to note that the significance of this research lies in exploring an innovative educational approach – that of the forestry school – in the context of Abu Dhabi, where there is currently a notable absence of studies evaluating such programmes. Although there is a growing global interest in forest schools, and educators are aware of their potential benefits for student development, there is a distinct lack of empirical studies that examine their implementation and effectiveness within the socio-culture and environmental context of Abu Dhabi. This research suggested strategies for improving educational practices, promote

environmental awareness, and promote sustainable development in Abu Dhabi and beyond. The research seeks to generate evidence-based information by filling the knowledge gap regarding the application of a forest curriculum in the Emirate of Abu Dhabi. This information can inform transformative educational interventions and contribute to a more equitable, resilient and connected-to-nature society.

1.6 Structure of the Dissertation

The chapters of the dissertation are segmented into five distinct parts as follows:

Chapter one will provide a brief overview of the history of forest schools, outline the significance of such schools in modern education, and identify the research questions addressed in this study. This then leads to forming and highlighting the problem statement, objectives, rationale, scope of the research, and setting the stage for the subsequent chapters.

Chapter two offers an in-depth description of the existing literature on forestry school curricula. The section also includes a comprehensive overview and analysis of the relevant research on nature-based education in the UAE. The chapter further highlights a conceptual framework and the theoretical foundations of forest schools.

In Chapter three the methodology will be discussed and an overview will be provided of the study's research design, data collection methods, and analysis techniques. The chapter describes the mixed research approach used to gather data. In addition, it includes participant selection, data gathering through interview and questionnaire, and thematic analysis procedures. Finally, it addresses ethical considerations and limitations inherent in the research process.

The fourth chapter offers a review of the empirical data collected during the research process. This includes descriptions of the participants' experiences and perspectives regarding forest school programmes, as well as a thematic analysis of the data to identify recurring patterns and ideas. Results are organised thematically and supported by direct quotes from the participants to increase credibility and trustworthiness.

Chapter 5 interprets research findings in relation to a broader theoretical framework and the existing literature. It explores the links between the findings and educational theory, practice and policy, highlighting the importance of forest schools in promoting holistic child development, encouraging environmental stewardship, and improving academic results. Additionally, it reflects methodological considerations, acknowledges limitations, and suggests avenues for future research.

Chapter 6 synthesizes the main findings and arguments presented in the dissertation, confirming the importance of forest schools as innovative educational frameworks in terms of integrating nature-based learning into formal school systems in the UAE. Additionally, it restates the research questions, summarises key ideas, and offers conclusions on the potential of forest schools to transform educational practices and promote sustainable living in the 21st century.

Chapter 2: Literature Review

2.1 Introuction

This chapter seeks to explore the diversity of aspects that are associated with forest schools as such their inception and manifestation of what makes their curricula unique. It endeavours to untangle the numerous advantages that this nature-based learning model provides, not only in promoting academic success but also perfecting the all-round growth of learners. In addition, this review discusses the challenges associated with adoption, and questions surrounding the implementation of forest school curriculum - an angle that is essential for understanding practical application in various settings. Significantly, this exploration includes an analysis of the adaptation and implementation of forest school principles in a unique context: that of the UAE. This gives us a chance to compare how such an approach is adjusted under the guidelines of environmental, cultural and educational patterns that characterise a region which sharply contrasts with where forest schools originated. By integrating undertaking, a critical analysis of diverse pieces of literature, this review claims to offer an elaborate description of forest schools, and add to the discursive sphere where alternative educational approaches impact further generations.

2.2 History of Forest Schools

According to Harris (2021), forest schools, often referred to as nature-based education or outdoor learning, represent an educational approach that immerses children in natural settings in order to foster holistic development and establish a strong connection with the environment. Forest schools can be attributed to 20th century Denmark when numerous societal and educational reforms shattered old ideals relating to conventional training. As mentioned by

Dean (2019), educators in Denmark started to appreciate the positive impact that an outdoor activity might have on the growth and development of a child. According to Williams-Sieghfredsen (2017), prominent people such as Ella Flautau spearheaded this movement. The first official forest school - referred to “Skovbørnehave” (forest kindergarten) - was established in 1958, and it was Ella Flautau who identified a type of such a school in Copenhagen. The innovative programme associated with this school became incorporated into the established educational framework and was designed to give primary school children frequent contact with nature as part of their learning activities.

According to Williams-Sieghfredsen (2017), after forest schools appeared outside Scandinavia, the movement gained speed in the early 1990s, with some countries such as the United Kingdom adopting this teaching method. The effect of the Scandinavian approach to early childhood education was something that spread beyond borders, and it can be best said to have been influenced by pioneers and their collaboration with colleagues in other countries. Additionally, as mentioned by Mackinder (2021), a turning point in forest schools’ history occurred in 1993 when a team of nursery nurses and professionals from Bridgwater College in Somerset visited Denmark to observe the realisation of forest schools. This visit was made possible because the concept of forest schools had been implemented in many schools in the UK much earlier. In addition, Mackinder (2021) also emphasised that Bridgwater College had acted as a pioneer by being the first to be formally registered as a forest school in the United Kingdom. Thus, among other things, this event is important to consider in terms of the chronology of forest schools because it was the time when an actual shape and form were slowly taking root in order to support its evolvement as a leading trend, with recognisable features becoming well-known beyond UK borders. This was done by creating specialised

courses and education programmes for educators, setting the stage for the emergence and development of forest schools in the UK.

According to Waite (2020), the 1960s and 1970s provided a defining moment in education as new outdoor education philosophers revolutionised the field through their respective ideas. In this period there was a sprouting of interest in experiential and nature-based learning, with these social changes responding to the environmentalism and balance needed in teaching children, which had shifted from quick or traditional methods.

In addition, Cook (2000) mentions Kurt Hahn and John Dewey as being notable pioneers of that revolutionary time. Key figures who contributed during the foundation stage of experiential learning included Hahn, who, along with Lawrence Holt was responsible for introducing the Outward Bound, and Dewey whose views on progressive education are widely known in the present-day. These philosophers advocated the use of practical and immersive methods to encourage contemplation and provoked a more profound comprehension of educational concepts. This objective is one which has gained acknowledgment from the wider community.

Taniguchi (2004) similarly highlighted the role of outdoor education by furthering Dewey's philosophy, focusing on the fact that the outdoor serves as a powerful catalyst for reflective learning. These philosophical concepts very quickly spread throughout various levels of the education system, and therefore gave birth to the concepts of forest schools, wilderness programmes and adventure-based learning projects. In addition, their sphere of influence went beyond conventional academic institutions, leading to the creation of standardised programmes based on team building initiatives, leadership development, and environmental education, in line with natural phenomena. Thus, the 1960s and 1970s saw a

fundamental transformation in pedagogical ways, as educators recognised the revolutionary power of experiential learning and outdoor education. These late 20th century years celebrated the fact that learning could be enhanced by ‘learning through living’, rather than by students merely being told what should be remembered, laying a steppingstone to instituting an encompassing and immersive approach in the field of education.

According to Knight (2013), the forest school movement grew and became internationally acknowledged during the late 20th century. Initially a progressive reform from Scandinavia, it became an international movement in child development and environmental education. Facilitated principles of Scandinavian Forest schools defined by their accomplishments, and positive results, helped to shape the minds of educators, researchers and policy advisers across the globe. At this same time, the environmental movement was also gaining traction, highlighting nature immersion and ecological awareness. The Forest School Foundation (n.d.) drew attention to the adoption of forest school practices worldwide. However, they were shaped according to cultural, ecological, and educational peculiarities in regions such as Europe, North America and Asia.

During the 20th century, research as that of O’Brien (2020) indicated that forest schools were relevant in terms of academic learning, physical fitness, psychological wellbeing and social behaviours. The study by Cordiano et al. (2019) complemented the notion that outdoor, nature-oriented education was a significant and viable perspective of teaching. Moreover, Barrable & Arvanitis (2019) noted that forest schooling significantly evolved in terms of enquiry-based learning about nature and initiating an intensive relationship with it. The incorporation of policies and funds to enhance forest school principles in the national curriculum was observed in several nations.

The late 20th century was, however, a turning point for nature in an educational context. Starting in Scandinavia, the growth of forest schools became a worldwide trend that changed little ones' lives, and made a major change in educational conceptions. People discovered the value of goods and services provided by outdoor activities which strengthened the people-nature relationship. According to Waite (2022), forest school philosophy has become globalized in the 21st century. Countries such as Canada, Australia, Germany, and Japan have adapted the concept to their cultural and environmental contexts. These kinds of adaptations have brought children near to nature, especially in cities and in technologically-modernized societies. In 2006, a notable growth in nature preschools and kindergartens was witnessed in the United States of America. Ozturk (2021) envisaged that the American approach would combine forest school principles with other educational philosophies such as those of Montessori and Waldorf, to form an outdoor education model.

Forest schooling is dynamic in nature, allowing new educational concepts to become part of the educational curriculum. The increase in international awareness regarding human-induced climate change, and the destruction of environmental systems, has made the notions of sustainability and ecological education important. According to Tiplady and Menter (2021), forest schools are not viewed purely as learning centres but also vehicles through which young people become environmentally conscious and develop sustainable practices. The forest school model is tailored to the various age groups, showing how outdoor learning has impact in a child's education path. For this reason, the history of forest schools drawing their roots from Scandinavia in the early 20th century is intriguing, and also educational. One of the main points in nature education's history was especially emphasized with the student's heritage. As a consequence of undergoing natural and cultural changes, forest schools have evolved in

terms of exploring the need to cooperate with nature. It continues to provide a comprehensive educational philosophy that promotes intellectual progress and a lifelong dedication to nature, with the goal of meeting the inherent demand for learning in a dynamic society.

2.3 Curriculum Components of Forest Schools

2.3.1 *Outdoor Experiences as the Foundation*

The natural environment is an integral part of the forest school curriculum because it involves immersion in nature. Hoyt-Parrish (2018) offers several reasons as to why the development of a no-boundary classroom, where nature itself becomes an instructor and exploration initiates unlimited spectrum discovery, is important. It promotes an extremely intimate relationship between children and the natural environment. Involvement in the activities of nature not only enlightens environmental education, but also infuses a true respect for mother-earth. Additionally, according to Grierson (2023), such an environment creates a multisensory outdoor stimulus for children to allow them to understand nature through touch, smell, sound and taste. These sensory interactions are crucial for their cognitive development because, as they spend much of their time alone, they need to communicate with the external environment. Moreover, according to Herrington and Brussoni (2015), outdoor play fosters much needed physical exercise. Engaging in activities that involve walking, running and physical movement in natural terrains make a very considerable contribution to children's health. Finally, this method of educating is holistic and all-encompassing, involving intellectual development skills as well as physical activity, social interaction practices etc. With physical outdoor activities, children have their education through the form of integrating most if not all the domains.

2.3.2 *Child-centred Exploration*

Close (2012) passionately introduces the underlying philosophy behind forest schools in which the ordinary rigorous curriculum is replaced with a more free-style, child-guiding learning and adventure process. He describes the transition that provides an opportunity for children to make independent choices, ask questions and explore activities where they learn for themselves. This approach includes the freedom to discover. Children are enriched by nature, learning at their own pace as they strive to explore forests, intermingle with a wide range of natural elements and reveal its secrets, which enable their curiosity and encourage ingenuity. In this environment of choice and decision-making, children control activities, leading to the development of critical thinking in this setting as claimed by the author. Moreover, according to Flick, the role of hands-on learning is also important because physical connection with nature gives a deeper understanding than that provided by abstract knowledge. Children also climb trails and can build an actual fort, which means that they are physically involved in the process. The other pillar in this regard is intrinsic motivation, derived from the much-touted natural inclination to learn, and sharpened by offering them the freedom and autonomy of different opportunities to engage with their environment. Finally, Cudworth and Lumber (2021) describe the function of teachers at forest schools as mediators who observe and adjust learning encourage children to reflect on what is going on and support them in becoming increasingly aware of the natural world around them. This comprehensive process is not only related to learning, but also involves the art of instilling a genuine enthusiasm and reverence for nature from childhood.

2.3.3 Hands-on Learning and Practical Skills

O'Brien (2020) strongly advocates for the essential role of hands-on learning in forest schools and nature-based education, emphasising its immersive nature. He views it as an active process where children engage directly with their environment through physical activities, experiments, and practical experiences, predominantly in outdoor settings such as forests and woodlands. According to O'Brien (2020), this approach involves several key elements: physical engagement with nature, whether through climbing trees or observing wildlife, which fosters a strong connection with the environment; exploration and inquiry that enhance critical thinking and problem-solving skills; experiential learning where children learn by doing, such as by planting seeds and observing their growth; real-life applications of skills such as building shelters or starting fires, highlighting the importance of practical knowledge; and multisensory engagement, using all senses for a deeper understanding of nature.

2.3.4 Development of Practical Skills

Austin et al. (2016) point out the importance of tangible learning in forest school environments and nature-based education, since it offers a more practical component that enables nurturing skills that can be utilised across a wide range of settings. From his point of view, such skills are numerous, as are other abilities which are important in child development. They come to understand the significance of survival skills acquired through training in outdoor situations, which not only ensures their use in such settings, but also promote independence and safety in young children. Additionally, the authors emphasise the value of group work and cooperation in nature-led schooling. Though almost all practical

activities require teamwork when engaging in such practices, the results are a great lesson for children, since they learn how to share responsibilities or talk with peers. In addition to critical thinking, the problem-solving aspect of experience encourages other vital skills through practical experiences, since children learn how to solve challenges such as deciding whether to make renovations over a stream or, if there is a need for water, where do they find it. Finally, the authors stress the importance of independence as the final upshot of physical activities in forest schools.

2.3.5 Interdisciplinary Learning Opportunities

Hoyt-Parrish (2018) emphasised the importance of interdisciplinary learning in forest schools and nature-based education which emerged as a result of the convergence of multiple educational disciplines in outdoor settings. This approach not only enhances the educational process but also reflects the intricate interdependence of knowledge, and the complex nature of human interaction with the environment. Forest schools employ educational methods that integrate disciplines such as science, mathematics, language arts, and social studies with outdoor activities. Rather than teaching these subjects in isolation, teachers combine them with outdoor experiences to provide a cohesive and enhanced learning experience. Furthermore, Hoyt-Parrish emphasises the practical significance of this cross-disciplinary approach as well from a real-life perspective and, in particular, through reference to applied activities such as collaborative ecosystem research that links biology, environmental science, geography and mathematics. This problem-focused approach, that looks at real-world environmental issues and conservation conflicts associated with sustainability initiatives, also helps to shape critical thinking skills. In addition, Hoyt-Parrish ties interdisciplinary learning to experiential learning

because practical activities, experiments as well as fieldwork, reinforce conceptual understanding. He also emphasises the significance of interdisciplinary themes such as nature, sustainability and environmental stewardship, because not only do they tie different disciplines together, but they create an all-encompassing culture as well as a sense of civilization.

Hence, intrinsic features of the curriculum of forest schools relate to engaging children with the natural habitat with the aim of stimulating harmony with nature while enabling integral development. It is the child-centric nature of hands-on learning and having well trained forest school leaders to initiate childrens' involvement in the process that ensures that they empower themselves to learn in line with their own ability. The interdisciplinary and extracurricular aspect of the forest school curriculum ensures that the programme produces well-educated people who possess a deep understanding of their surroundings and a strong sense of well-being. In fact, forest schools prove true to their word and act as prodigious models that feed the children's hearts and minds, helping them navigate through an unstable world.

2.4 Benefits of Applying the Forest School Curriculum

The analysis of the forest school curriculum not only drives to the achieving of its wide ranging advantages that make an impact on physical, cognitive, and socio-emotional development, as well as contributes to the general life quality of the child. Research by Haskell et al. (1992) can be viewed as a pivotal starting point in comprehending the physical health outcomes of forest schools. These researchers found that any physical activity in nature can serve, not only to improve the heart, but also to offer muscle development and general fitness. This study highlighted the integral role that nature-based educational activities play in

developing healthy bodies and embedding the habit of practicing physical activity from a young age.

Berman et al. (2008) developed cognitive change concept by articulating the cognitive advantages that may be attained from engagement in forest school programmes. They pointed out how spending time in nature away from electronic screens would help the child to focus better if they are determined enough. The research revealed the forest as an open setting to develop the ability and intelligence. Additionally, Mayer et al. (2009) added to the debate that exposure to nature has a positive impact on health, and suggested that healthcare professionals should recommend this public health strategy as an effective way of improving both physical and mental well-being. Their findings suggest that even the limited forestry found in city parks can help relieve stress and improve mood, thus demonstrating a potential positive influence on mental health provided by forests.

Chawla (2015) highlighted the stress and anxiety relief phenomenon due to exposure to nature, thus supporting the notion of positive change in children as a result of nature-based learning. In addition, Cumming and Nash (2015) discussed the aspect of emotional development within a forest environment, specifically focusing on the cultivation of self-regulation, self-assurance, and a sense of community. They argued in favour of incorporating a narrative centred around emotions. Kim and Koo (2019) also pointed out that forest schools enhance cognitive development, school performance, develop superior competence in critical thinking, and improve problem-solving due to the naturally competitive spirit of children. Additionally, Chalman (2019) also studied the increasing self-resilience and confidence in children as a result of forest school activities, whereby challenges are overcome in a natural environment.

Furthermore, Karavida et al. (2020) added to the discussion of social development and collaboration established in forest schools with regard to cooperation, conflict resolution, empathy and leadership skills. Their research focused primarily on the fact that the forest formed a lifelong nervous system being incorporated into society by ruling others in the maze network of human connections. Moreover, Knight (2020) contributed to the story by referring to the transferable life skills of being flexible and adaptive, aspects which are taught in forest schools including resilience, comfortable familiarity with uncertainty, and problem solving as a response to challenges in nature.

Later, Sella et al. (2023) developed a holistic approach in forest schools with an emphasis on cognitive development and academic performance which includes critical thinking, problem-solving and creativity. They also emphasised the opportunity for practical scientific research and activities in the outdoors to promote language development and other communication skills.

Thus, the forest school curriculum is, without a doubt, an all-encompassing approach to learning that offers numerous advantages that span a wide variety of aspects related to the promotion and maintenance of childrens' high levels of health and wellness. In addition to fostering bodily and mental maturity, it also fosters social network and emotional steadiness. It also, and perhaps most importantly, takes into consideration the relationship between nature and children and contributes to the development of sustainable practices and the pursuit of permanent discovery. Providing children with much-needed life skills, while marveling at how wonderful our world is to exist in, can be said to be a viable learning device which enriches individuals for generations to come. The integration between outside and indoor activities is a part of the daily schedule in the context of forest schools, and it is an aspect of the curriculum

that is followed every day. Although modern society and social life provide challenges in many other areas, the curriculum of forest schools stands out in stark contrast. For instance, when compared to nature education, which never loses its invaluable worth as a practice that is designed for complete individuality and is full of sustainability, the forest school curriculum is in stark contrast.

2.5 Theoretical Framework

The philosophy of forest schools' foundations is embedded in various theories and conventions which espouse global learning as a means that influences the process of development from early childhood to adulthood. Madarwala (2022) argues that forest schools, modeled after the teachings of scholars such as Friedrich Froebel, emphasise learning by experience in natural settings in order to capture childrens' core interests and love of nature. According to Knight et al. (2023) this approach is constructivist in nature, based on the fact that children learn through direct observation as forms of environmental interaction. Attention is paid to learning as an interactional process where children's role should not be limited to those being educated, nor becoming receptive while this knowledge must be transmitted. The inherent value of nature for development, not just physically but also in terms of emotional reservedness, social progress and mental engagement, underlie this philosophy. This view treats nature as the large living school, where there are no limitations in terms of opportunities to marvel in play. In addition, Knight (2021) reveals that the forest school philosophy has an environmental worldview passed on to learners who develop respect for nature through learning. This holistic approach helps individuals to develop into a person who is aware as well as compassionate, resilient and eco-friendly, making them ready for a changing world.

2.6 Methods of Evaluating Forest Schools

According to Austin et al. (2016), forest schools, with their nature-based and child-centred approach, have gained recognition for their positive impact on childrens' development. However, to validate their effectiveness and in order to make informed decisions regarding their implementation, it is crucial to evaluate schools that follow the forest curriculum. The forest school's assessment involves the thorough analysis of different aspects of education. Various methods and tools are normally used in the evaluation process.

2.6.1 Observation and Documentation

As stated by Karavida et al. (2020), observation and documentation are central to measuring the interactions that occur under forest schools as well as evaluating how effective it is an educational method. Qualified evaluators record the behaviour of children in terms of natural features such as watching and copying others and also in terms of interaction with the surrounding environment. These evaluations give a unified account of the educational process through the use of written documents, photographs or video presentations relating to children's activities in the classroom or other locales. There are a number of aspects to be considered. Firstly, safety is paramount in such an evaluation where a specific emphasis is placed on the implementation of proper security protocols and strict risk control with regard to outdoor activities, as a result of which children can enjoy playing and learning within relatively controlled surroundings. Additionally, in accordance with Close (2021), child-led learning is another major component that is evaluated, with evaluators measuring the degree to which children's learning is influenced by their environment, in this aspect representing a core forest school principle. Social interactions inside outdoor settings are closely monitored, based

on considering the various ways children respond to both peers and adults, so that social recognition is promoted through cooperation, dialogue and psychic development. Moreover, as pointed out by Restall and Conrad (2015), the evaluative process engages the depths of children's bonding to nature and their environmental awareness, aiming to quantify not only social links with their natural surroundings, but also how they can manage those resources. To conclude, in forest schools, observation and evaluation cover the safety aspect of the experience, the process of child-led learning resulting in social interaction, and the building of a deep relationship with nature focusing on environmental literacy that guides young people towards an ecological way of thinking.

2.6.2 *Child Assessment*

According to Tiplady and Menter (2021), child assessment is a significant aspect of the evaluation of development and progression on the part of an individual child within the forest school setting. This evaluation covers different approaches that provide insight into each child's development and the learning path they follow. Hillstrom (2016) mentions an approach that revolves around studying developmental milestones, which judges children's performance against age-appropriate in the form of normative data. This comparison will clarify whether or not a youngster's development is being achieved. This provides an appropriate breakdown in terms of assessing the overall progress of an individual, and identifying options that should be emphasised. Additionally, as per Sharma-Brymer et al. (2018), portfolio assessment tools constitute another valid means of evaluating children in forest schools. In this stage, kindergarten practices are evaluated based on the children's activities over a prolonged period of time. This process could involve assessment and evaluation involving the use of workbooks

journals or projects. In this regard, by assessing such portfolios, educators can obtain a comprehensive view of the learning journey that a child has undertaken, and can chronicle their growth over time, as well as assessing the strengths and weaknesses that need further exploration or even more in-depth development. Together, these assessment strategies enable teachers to adapt their support and guidance in order to cater for the personal needs of each child, while also showing cumulative action method in a forest school environment that is centred on developing the individual child's potential.

2.6.3 Parent and Caregiver Feedback

According to the report by Wait and Goodenough (2018), caregivers' feedback contributes significantly when it comes to evaluating the success of forest schools. The Program of forest schools is being managed from the perspective of the parents, caregivers who are mainly responsible for conveying to other people and themselves that they are satisfied that their children are receiving a good education. Caregiver feedback is also gathered through surveys, interviews or focus groups that help the educators and administrators receive vital information on what part of the programme is good or needs support. There are several important areas in which feedback from caregivers is received, focusing on assessing levels of participation on the part of parents, and their stated perceptions regarding what the input and knowledge forest schools have brought to the developmental process. Such insight enables one to measure of the level to which parents feel involved and related to their child's learning as far as instruction in the forest school setting is concerned. Furthermore, the authors added that the feedback provided by caregivers is integral to determining how well forest schools communicate with parents about activities, goals, and improvements. Moreover, according to

Burleson (2020), positive interpersonal communication is essential to establish an effective working relationship that would be a model for any educational partnership. Overall, caregivers' feedback is important for developing forest schools by making this cultural experience as specific as possible in consideration of all the players, children and adults. As far as safety is concerned.

2.6.4 *Teacher and Staff Assessment*

According to Close (2012), the evaluation of the opinions of forest school leaders and employees is one of the most important aspects when it comes to evaluating a programme's efficiency. By providing first-hand accounts of children's development and recalling experiences with outdoor activity planning, observers provide valuable insights into the curriculum's actualisation. Collecting such input is achieved through surveys, interviews, or focus groups which help forest school administrators to determine the strengths and weaknesses of the programme they provide. The main criteria for evaluation in this context include analysing the quality of professional development services and support offered to forest school leaders, ensuring they are sufficiently qualified. Moreover, as Close (2012) indicates, the evaluation of the curriculum operationalisation, and the identification of problems that may have arisen, is a necessary step on how to improve these programmes. Finally, highlighting and reporting on successful cases and challenges that participants encounter during the forest school sessions ensures a comprehensive approach to such a programme; successes are celebrated while areas for improvement are addressed. To conclude, as Close (2012) opines, teacher and staff assessment may be viewed as a key factor in creating

the definite forest school form, directing improvement into the day-to-day dynamics of the programme.

Consequently, it is possible to analyse forest schools in order to identify whether or not the unconventional curricular approach is successful in achieving its objectives. Such evaluation can be carried out in order to arrive at a conclusion. By employing a variety of approaches, including observation, child assessment, and input from both staff and parents, it is possible to conduct an evaluation of forest schools that is sufficiently comprehensive. Having said that, it is important to take into consideration the challenges that are associated with measuring the progress of forest schools because these institutions are not strictly standardised and have a qualitative nature. The concept of balanced and wholesome evaluations demonstrates all of the benefits that a forest school offers to pupils in terms of their learning, their well-being, and their connection to the natural world. It is still possible for forest school instructors, parents, and policymakers to make reasonable decisions on the further expansion of forest school education if they undertake rigorous assessments.

2.7 Challenges of Applying a Forest Curriculum

According to Clausen (2020), the forest curriculum, with its naturalistic and child-centred orientation, has been lauded for enabling wholesome development as well as for increasing environmental consciousness. Nevertheless, the application of this educational model is not free from difficulties.

First, forest curriculum application faces substantial environmental and geographic limitations that differ greatly from one region to another. These constraints present significant challenges to the development and performance of forest school initiatives.

Second, according to Williams-Sieghfredsen (2017), activities practiced in forest schools tend to be based on temperate climates because it was under these conditions, such as those found in Scandinavia, that the concept originated. If forest school activities are adapted to areas that have very severe climatic conditions such as extreme hot, cold or continuous wet seasons, it entails a lot of planning and modification. As per the report of Zuo et al. (2015), heat exhaustion and sunburn are major sources of risk in areas with hot climates such as parts of Australia or the Middle East. Activities should be planned to avoid peak heat periods, and sufficient shade must be provided in conjunction with adequate hydration. On the other hand, warming and protecting children in cold environments is also a huge problem. These comprise dealing with snow, risks of frostbite and dressing children well.

Third, according to Botkin & Beveridge (1997), in highly populated cities, access to either forested or natural environments may be almost impossible due to lack of space in such areas. In such regions, the school might have to look for alternative resolutions in terms of using city parks or small green spaces as they will not be able to provide an ideal forest environment. There is a distinct problem in deserts or arid areas such as in parts of the Middle East and American Southwest, where there are no traditional forests. To modify the curriculum in this kind of environment, there is a need to concentrate more on one's local ecosystem which can differ significantly from forest areas.

Finally, according to Clausen (2020), forest schooling necessitates a culture of outdoor safety, nature-based pedagogies, and child-led learning facilitation that is not currently sufficiently addressed through conventional teacher training programmes. In addition, specialised teacher training is required. Finally, continuous professional development is needed to guarantee that educators are keeping up with the latest trends in forest schooling,

including the adaptation of shifts to meet new environmental conditions, and implementing the latest results from educational research.

2.8 Application of Forest Curriculum in the United Arab Emirates

2.8.1 The Unique Climate and Environment

The application of a forest curriculum, with its emphasis on nature-based education, can present both opportunities and challenges in the United Arab Emirates (UAE). According to Elhacham and Alpert (2021), the UAE is primarily characterised by its arid desert environment, with extreme temperatures during the summer months. Unlike the traditional forested landscapes that forest schools typically thrive in, the UAE presents a distinct challenge due to its lack of lush forests and the abundance of desert terrain. The conspicuous lack of forested areas has not hindered the establishment of the movement, especially on sandy terrain. Roberts (2023) reported that GEMS Education, a prominent educational institution, presently provides forest school-style lessons to students at three schools in Dubai: FirstPoint School, Wellington Academy DSO, and Metropole School. Sunmarke School and Kings School Dubai have also created mini-forest school environments on their premises. Raha International School has recently introduced a 'desert school' programme for young children. Brighton College Al Ain has a well-established desert school programme, being the first in the emirate of Abu Dhabi. Kangaroo Kids Nursery Dubai is planning to expand its early years' forest school. Consequently, it is important not to completely disregard the possibility of implementing the forest curriculum in this particular situation. Instead, it necessitates inventive adjustment to harmonise with the indigenous surroundings and weather conditions.

According to Almheiri (2015), although there is a lack of dense forests, there is landscape diversity in the UAE, comprising sandy beaches and coastal areas, and mountains mixed with desert environments. These diverse habitats can be used as highly effective outdoor laboratories for nature-based education. According to Donat et al. (2014), winter months in the UAE are relatively cool, and hence it is an appropriate time for outdoor learning, and forest schools can therefore organise their activities during the cold season. It should also be noted that the UAE has invested in artificial green spaces, parks and botanical gardens. Such spaces can be used to recreate natural surroundings and provide opportunities for outdoor learning.

2.8.2 Existing Initiatives in Nature-based Education

Though not directly implementing the forest curriculum, several initiatives and pilot programmes relating to nature-based education have been introduced in the UAE. These programmes offer important findings on the viability and adaptation of nature-based pedagogy in this area. Roberts (2023) states that nature-based preschools have emerged, emphasising outside play and sensory stimulation. These programmes focus on providing children with a natural environment, even though their schools are located in the city. They are influenced by forest schools that advocate free play and outdoor discovery. According to Burt et al. (2023), a number of nature-based education programmes are currently being provided by a few environmental education centres in the UAE. These centres offer the students an opportunity to interact with their surroundings and learn about sustainability, as well as taking part in a number of practical activities that promote conservation. They also function as beneficial instruments to schools and educators who use nature-based education in their programmes.

According to Dawson et al. (2020), there are some schools in the UAE that have integrated nature-based education as part of their daily activities. These activities include outdoor classrooms, gardens or green areas, where students can undertake hands-on learning. Teachers can use outdoor activities such as nature walks, gardening and environmental projects.

Therefore, in order to adjust the forest school curriculum in relation to their natural surroundings, an innovative approach is required. This is because the climate and cultural elements of the Arab Emirates are distinct from those of other countries. However, the projects that have been conducted in regard to nature-based education demonstrate how such efforts can bear fruit, despite the challenging situations. It is only through the incorporation of the local context, respect for cultural values, and education that is based on the natural environment, that the forest curriculum has the potential to become more significant in the UAE in terms of bringing children closer to nature. In fact, an increase in the prevalence of nature-based educational activities is expected to occur in the educational system of the UAE. These programmes will not only be useful to the younger generation, but also have the potential to assist in raising awareness about the significance of sustainable environmental management.

2.9 Chapter Summary

In summary, the purpose of this literature review is to provide a comprehensive overview of forest schools, with a particular emphasis on the evolution of these schools over time, and the essential elements associated with them, such as the components of their curricula. In addition, the advantages that are associated with the utilisation of forest schools for the purpose of evaluating procedures within the UAE are taken into consideration, along

with specific difficulties or potential opportunities. The purpose of this review is to reveal a variety of facts that can serve as a starting point for understanding what nature-based education is, and why it has enormous and exciting potential in a variety of educational settings within a number of nations across the world.

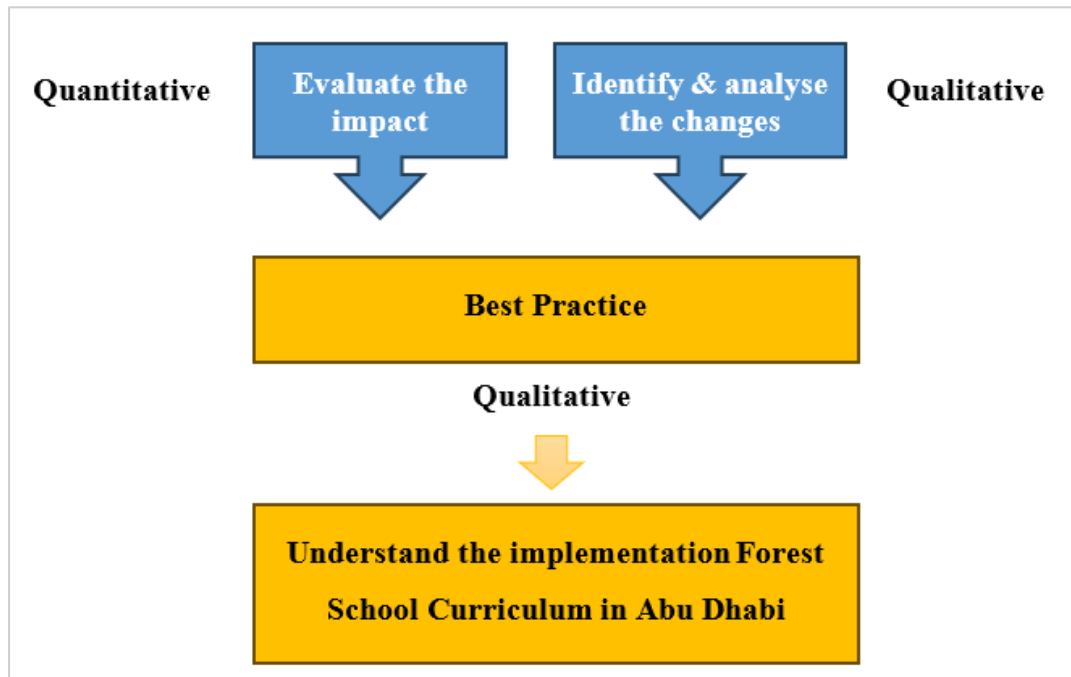
Chapter 3: Methodology

3.1 Introduction

In this chapter we describe the methodological approach behind this research. A methodology is a strategic approach that encompasses the data collection and analysis methods (McChesney et al., 2019).

3.2 Methodological Approach

Researchers can evaluate forestry programmes in several ways. In this investigation, mixed methods research (MMR). Methodology was employed, emphasising the comprehensive gathering, analysis, and integration of both quantitative and qualitative data (Cohen et al., 2017). Combining quantitative and qualitative approaches, MMR yields a more precise picture than either approach taken in isolation. Arguably, such an approach enables a greater understanding by steering clear of the shortcomings that are found in purely qualitative or quantitative approaches (McChesney et al., 2019). Explanatory models are particularly suited to creating quantitative data “the foundation” on which a model of best practices can be develop. The schematic depiction of this adopted design is presented in Figure 1.

Figure 1*Methodological Approach*

Note. Modified from Cohen et al., 2017

3.3 Ethical considerations

Ethical considerations are considered before the research begins. This guarantees the protection of the researcher and people who are providing responses. A third-party consent form was sent via email to all participants (principals and teachers) to allow for efficient and widespread dissemination. The trade-off between confidentiality and disclosure was addressed individually in each specific situation, ensuring that employees were not identified at any time. As the interviewees were promised anonymity, this had little bearing on the discussion, as confidentiality in publishing was a priority established beforehand. Examination of the questionnaires was also of little relevance, as they were known to all those submitting them.

An explanation was provided to respondents before beginning the questionnaire, stating that responses gathered would only be used to inform the current research endeavour. Even if the participants agree to participate, they can unsubscribe by closing the questionnaire. For the interview, during our initial discussion, I aimed to elucidate the fundamental premises underpinning my thesis and the objectives motivating my research. Before the interview, the researcher once again explained again what the answers would be used for, giving the principal time to answer any other questions she might have.

3.4 Sampling

The interviewee was carefully selected. Since she was the school principal, she had the experience and the ability to activate forest courses in its setting. Non-probability sampling methods were employed to select 42 respondents for the questionnaire, aiming to achieve a representative sample encompassing diverse perspectives. This was an acceptable approach since the aim was not to accurately reflect the general population, but only to represent teachers. This sampling technique, commonly employed in small-scale studies as discussed by Cohen et al. (2017), is frequently utilised in educational research. The data illustrated in Figure 2 makes apparent the substantial heterogeneity regarding the ages declared by those who completed the questionnaire. Although not intended for this, it was widespread and uniform. The age range ensures that opinions are not specifically dependent on a particular demographic. For instance, those who were approaching retirement are not under 20 years old and were adapted to the needs of this research because qualified teachers were the targeted sample. Most respondents identified as female (93%), with a minority made up of male

respondents (7%). This distribution was not premeditated, but rather reflects the predominant gender composition of the teaching staff within the school (Figure 3).

Figure 2

Ages of Questionnaire Respondents

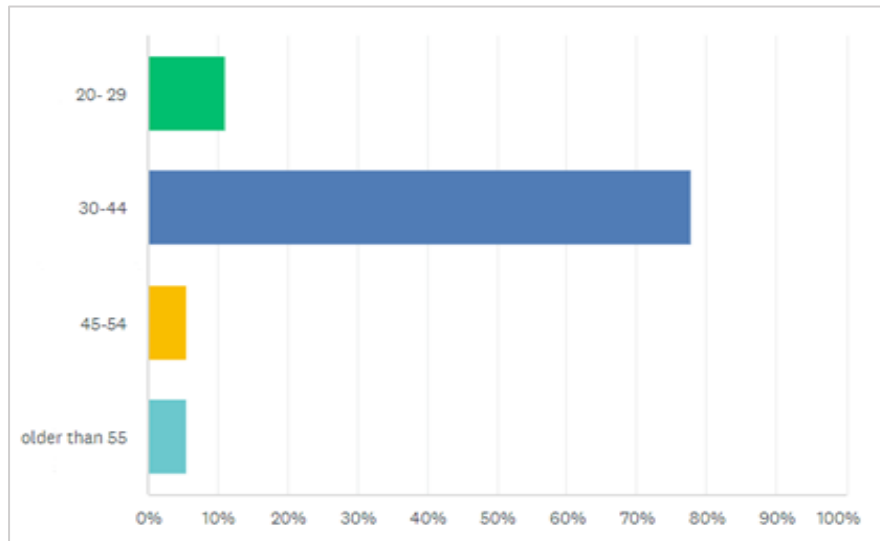
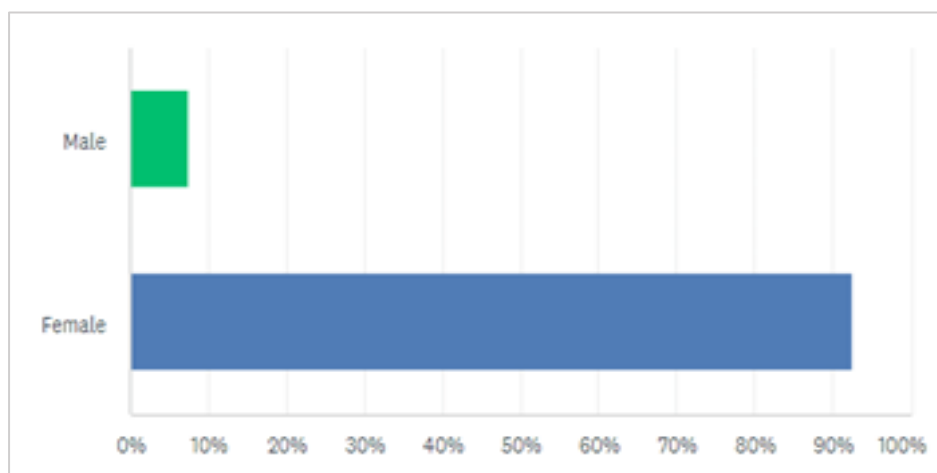


Figure 3

Gender of Questionnaire Respondents



3.5 Data Collection

3.5.1 Questionnaire

Quantitative data for this study were gathered through a questionnaire specifically designed to investigate the impact of the forest curriculum on student outcomes. An online survey distributed through the Survey Monkey platform yielded responses from a total of forty-two individuals. Online surveys offer the advantage of reaching a wide audience quickly and efficiently, as noted by Cohen et al. (2017). Anonymity was maintained to encourage candid responses, allowing participants to freely share their insights without fear of identification. While online surveys may provide useful data, it is prudent to recognise potential limitations like the impersonal aspect of digital questionnaires, technical difficulties, and risks of inaccurate details being reported (Cohen et al., 2017). To mitigate these issues, personalised invitations were sent, and the questionnaire commenced with a brief explanation of the research objectives to create a more engaging experience. Additionally, printed copies of the questionnaire were distributed in the staff room for those who preferred traditional methods, ensuring inclusivity and diverse participation. Responses from both online and printed surveys were compiled, ensuring all perspectives were considered in the analysis.

3.5.2 Interview

The interview with the school principal in this study was sent by email and the notes can be found in Appendix (F). It was used to get her feedback about implementing this kind of learning in the UAE. Through thoughtful discussion, the interviewer aimed to gain deeper insight into both the opportunities nature-based learning could provide for students, teachers, and the surrounding community's enrichment, as well as the difficulties such an approach may

encounter and its consequences. The interview questions were an open-ended type to allow the focus of the questions to be guided by the respondent's responses (Cohen et al., 2017).

The semi-structured interview with the principal involved the implementation of the forest curriculum. The interview began with introductory questions to establish rapport and gradually transitioned into more specific inquiries regarding the integration of forest curriculum into the educational framework. Key topics covered included the duration and nature of experience in the role, the alignment of the forest curriculum with the school's educational philosophy, the envisioned benefits for students, strategies for integrating outdoor learning into the existing schedule, teacher preparation and ongoing professional development, involvement of parents and the local community, safety measures during outdoor activities, assessment and evaluation of student progress, the necessary resources, anticipated challenges and mitigation strategies, addressing resistance or concerns from stakeholders, and plans for continuous improvement and adaptation based on feedback. This interview provided valuable insights into the practical aspects of implementing the forest curriculum in diverse educational settings.

3.6 Data Analysis

3.6.1 Questionnaire

Survey responses were collected via the Survey Monkey website, with an "Analyze Results" feature allowing researchers to review all the data collected. The survey employed a Likert scale ranging from "excellent" to "not at all" to gauge attitudes held by individuals, in a manner consistent with the process delineated by the scholars cited NAME? (2014) and Camparo (2013). By measuring attitudes, beliefs, and perceptions regarding diverse themes,

this scale functions as an instrument for evaluating the participants' perspectives across multiple categorical domains. The selection of data analysis techniques was predicated upon their demonstrated proficiency for elucidating each distinct dataset in an illuminating manner. Closed statements were used due to the possibility of obtaining quantitative data suitable for visual representation, which increased the clarity of the research results. In qualitative and quantitative research methods, closed-ended statements, as described by Creswell (2014), are structured to elicit responses within a predefined range of options, such as with the use of multiple-choice questions or Likert scale items.

3.6.2 Interview

Regarding the interview, the data analysis process involved a systematic review of the interview transcript obtained from the interviewee. The analysis used a qualitative approach, focusing on specific patterns, themes, and ideas in the respondent's responses to the interview questions. The following steps were followed to analyse the data:

3.6.2.1 Transcription. The interview was emailed to the principal to answer it. The transcription provided a textual representation of the responder's insights and experiences, facilitating further analysis.

3.6.2.2 Coding. The transcript was thoroughly read and coded to identify meaningful segments or themes within the responses. Codes were assigned to capture specific ideas, concepts, experiences, or emotions expressed by the interviewee. Codes were created iteratively, with careful consideration of the content and context of the responses.

3.6.2.3 Theme Development. The coded sections were categorised into wider categories or themes based on similarities and relationships between the codes. Themes emerged

organically from the data, reflecting the main topics or issues discussed by the interviewee. The development of themes involved constant comparison and refinement to ensure accuracy and coherence.

3.6.2.4 Data Interpretation. Each theme was analysed in-depth to extract key findings and insights. The content of responses within each theme was examined for patterns, trends, contradictions, or notable observations. In carefully analysing the full context around each response, as well as any details shared by the interviewee, we aimed to gain a richer understanding of the information collected.

3.6.2.5 Presentation of Results. A clear and straightforward presentation of the findings from the data examination allowed the researcher to easily comprehend the key takeaways. Quotes or excerpts from the interview transcript were used to illustrate key points. Each theme was accompanied by a detailed description and explanation, highlighting its importance and relevance to the research objectives.

3.6.2.6 Reflection on Limitations. The data analysis process was accompanied by reflection on potential limitations or biases. The researcher reflected upon how their viewpoint, conducting only a single interview, and other potential influences could have impacted the soundness and consistency of the outcomes.

3.6.2.7 Consideration of Future Research Directions. Ultimately, reflection on the insights gleaned from thoroughly scrutinising the corpus prompted contemplation of various paths for potential subsequent scholarly inquiry. Through identifying unresolved queries, ambiguous domains, and prospects to expand learning, recommendations were made to progress erudition within the subject in a way that could elucidate pending mysteries.

3.7 Summary

The chapter used a mixed methods approach to examine the implementations, effectiveness and challenges of forest school programmes in promoting the holistic development of children. The research design, data collection procedures, and analytical techniques applied to achieve the stated objectives have been thoroughly delineated within the chapter. By synthesising quantitative and qualitative data through a multifaceted lens, the investigation aimed to develop a comprehensive appreciation of the issue under consideration from an assortment of viewpoints.

Chapter 4: Findings

4.1 Introduction

This chapter provides context on the research findings before presenting and explaining them. The results are then synthesised and discussed. The research objectives were to develop an approach to determine the benefits, challenges, best practices and recommendations with regard to the forestry curriculum in the context of private schools in Abu Dhabi. To achieve this, the questionnaire initially examined the benefits of the forest curriculum for children. Next, an interview was used to explore existing obstacles to the forestry programme and strategies to overcome them.

4.2 Overview of the Research Aim and Methodology

This research aims to understand the curriculum implementation of a nature-based learning policy in private pre-schools, to determine the challenges of implementation, and to propose effective implementation strategies with regard to the forest curriculum to overcome these. This study was conducted using a mixed methods approach to evaluate two objectives; 1) the impact of nature-based learning on child engagement and learning outcomes, in terms of both academic and socio-emotional aspects. 2) the identification and analysis of the challenges faced by the school in implementing nature-based learning policies and forest curricula, and how these can be overcome.

4.3 The Impact of Nature-Based Learning on Child Engagement and Learning Outcomes

Teacher questionnaire findings indicated that 42 teachers agreed on the benefits of the forest curriculum. The most common answer for the first benefit "Nature-based or forest

school learning increases self-esteem and self-confidence" was "Good" by 50% of the respondents, followed by "Excellent" on the part of 28% respondents, "Acceptable" by 18% respondents, and both "Minor" & "Not at all" in the case of 3% of the respondents (Figure 4). The second benefit, "Nature-based or forest school learning improves social skills", had 45% of the respondents choosing "Good", 43% of the respondents choosing "Excellent", 10% choosing "Acceptable" and 3% choosing "Minor" (Figure 5). The third benefit, "Nature-based or forest school learning contributes to the development of language and communication skills" had "Good" as the common answer on the part of 55% of the respondents, followed by "Excellent" with 33% of the respondents, "Acceptable" on the part of 10% of the respondents, and "Minor" in the case of 3% of the respondents (Figure 6). The fourth benefit, "Nature-based or forest school learning improves motivation and concentration", had 40% of the respondents choosing "Good", 33% choosing "Excellent", 20% choosing "Acceptable" and 8% choosing "Minor" (Figure 7). The fifth benefit, "Nature-based or forest school learning improves physical motor skills – fine and gross", had 43% responding with "Good", 35% responding with "Excellent", 20% responding with "Acceptable" and 3% responding with "Minor" (Figure 8). The last benefit, "Nature-based or forest school learning contributes to children's knowledge and understanding of the environment", had "Good" as the common answer on the part of 50% of the respondents, followed by "Excellent" on the part of 33% of the respondents, "Acceptable" on the part of 15% of the respondents, and "Not at all" on the part of 3% of the respondents (Figure 9).

Interview answers from the principal also confirmed that the forest curriculum and nature-based learning significantly impacts child engagement and learning outcomes. The principal highlighted the educational philosophy of nurturing children's development and

providing opportunities to achieve their full potential. Forest schools support this philosophy by promoting real-world learning through the exploration of nature. Based on the interview answers, the principal agreed that children are encouraged to initiate their own learning experiences, thereby fostering self-esteem, creativity, confidence and independence. In addition, the principal's answers confirmed that learning in and with nature provides many opportunities for exploration and independent decision-making, promoting child-centred learning, exploration and play. Additionally, the principal was of the opinion that forest schools facilitate sustained risk-taking and improve children's resilience by enabling them to overcome challenges in a safe environment. As a result, being in nature motivates children by increasing their motivation and enjoyment of learning, which results in improved academic performance in various subjects such as science and mathematics.

Figure 4

*Nature-based or Forest School Learning
Increases Self-esteem and Self-confidence.*

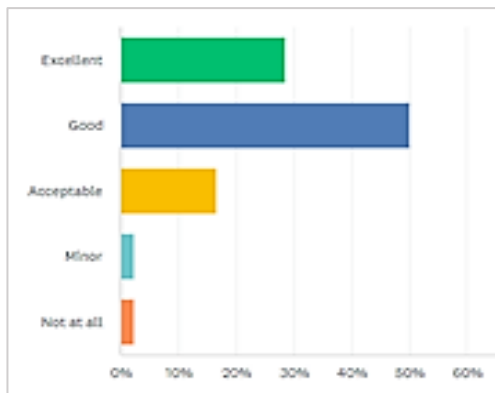


Figure 5

*Nature-based or Forest School Learning
Improves Social Skills.*

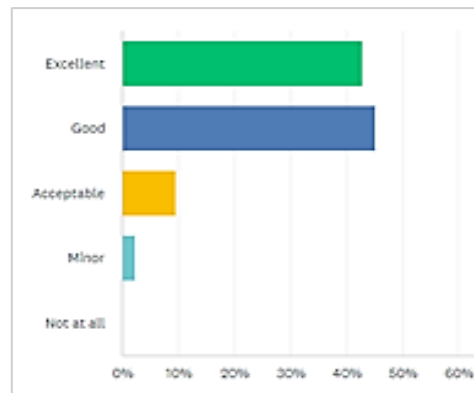
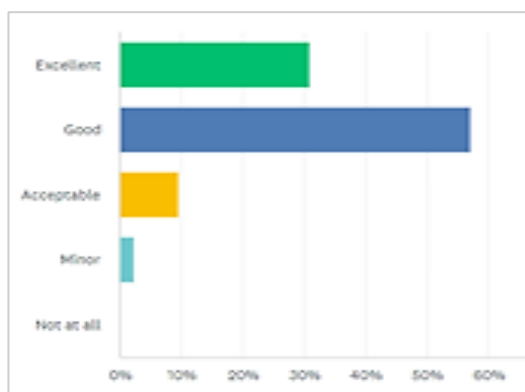
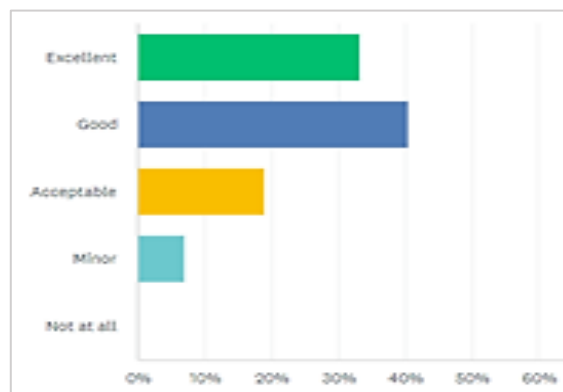


Figure 6

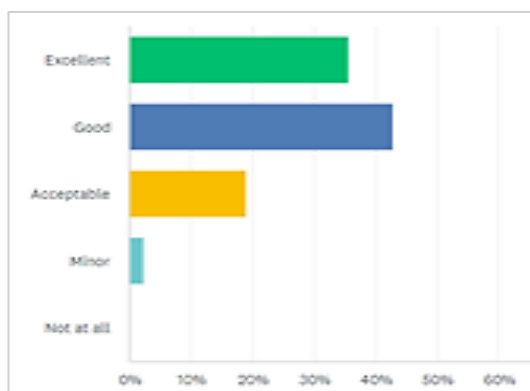
*Nature-based or Forest School Learning
Contributes to the Development of Language
& Communication Skills.*

**Figure 7**

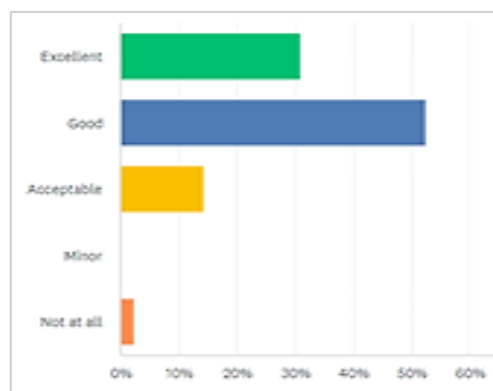
*Nature-based or Forest School Learning
Improves Motivation & Concentration.*

**Figure 8**

*Nature-based or Forest School Learning
Improves Physical Motor Skills – Fine &
Gross.*

**Figure 9**

*Nature-based or Forest School Learning
Contributes to Children's Knowledge &
Understanding of the Environment.*



4.4 Challenges in Implementing Nature-Based Learning Policies and Forest Curricula

The interview revealed that 6 primary obstacles hindering the implementation of the forest curriculum and provide the need for strategies to overcome these obstacles. The obstacles were: weather changes safety risks, delays student exposure to traditional academic content because of the immersive nature of outdoor play, requires appropriate teacher training, requires parental involvement, and necessitates the availability of certain key resources. Throughout the duration of this research, common threads surfaced pertaining to available resources, teacher training, continuous evaluation, student safety, educational curricula, and parental involvement (Figure 10).

Figure 10

Challenges of Forest Schools



4.5 Overcoming the Challenges of the Forest Curricula

4.5.1 *Parental Involvement*

The school principal proposed four potential approaches to addressing the challenge of parental expectations. These strategies encompass establishing transparent guidelines for new parents from the outset, offering training sessions beneficial to the entire school community, hosting a launch event to enhance visibility, and sustaining continuous communication to ensure parents remain informed and involved. Moreover, she said that the school ensures that parents are fully informed about security and safety policies. The school values continuous communication with all stakeholders, especially parents, and the need to address their concerns and suggestions promptly. When concerns arise, the school carefully considers them and the security and safety team develops plans for resolution.

4.5.2 *Teacher Training*

The principal explained how the school overcame teacher training as a boundary. She focused on the critical importance of ensuring that teachers comprehend the philosophy and underlying significance of the forest school approach. To address this aspect, the principal had implemented extensive training programmes designed to familiarise both new and experienced teachers with the core principles of the forest school philosophy and its practical application across various subjects. These training sessions delve into methods for effectively integrating and linking different subjects within the outdoor learning environment. Additionally, she highlighted the importance of ongoing support and feedback mechanisms for teachers, including opportunities for immersive learning experiences in natural settings, and participation in learning circles facilitated by experienced educators. Furthermore, the

principal underscored the commitment of her school to continuous professional development, with tailored training programmes and performance assessment guiding the allocation of professional training hours for each teacher. Through these initiatives, she aimed to cultivate a cohesive and informed teaching community capable of delivering high-quality education within the framework of the forest school approach.

4.5.3 *Continuous Evaluation*

According to the school principal, continuous evaluation is essential in the school's approach to forest curriculum implementation. In terms of assessing and evaluating student progress in the forest curriculum, the school employs various methods. One method is the observation of students' learning and interactions in outdoor areas on a regular basis. Additionally, students are given targeted tasks as part of their outdoor experiences, which are then evaluated to monitor their learning. In addition, the school analyses data on student achievement at different stages to gain insights into their progress across different subjects and aspects of learning.

4.5.4 *Student Safety*

To ensure student safety, the principal confirmed that in her school they prioritise thorough planning for outdoor activities, including assessing activities, supplies, settings, and the equipment needed. They conduct weather checks and inspect locations before taking children there. Furthermore, the children receive guidance on proper conduct and safety procedures while the teachers and their assistants obtain first aid training to allow them to handle any possible mishaps. They always carry a first aid bag and a phone for emergencies. Students are also provided with protective supplies appropriate for the weather and location.

Risk assessments for learning activities are always conducted to ensure student safety. Moreover, they ensure parents are fully informed about the school's security and safety policies. The school values continuous communication with all stakeholders, especially parents, to address their concerns and promptly act on their suggestions. The school's safety policies undergo a thorough examination and revision in accordance with suggestions solicited from, and input garnered by, concerned parents and dedicated employees on a consistent basis. In addition, the forest school programme begins from the school site, allowing students to familiarise themselves with outdoor learning in a comfortable environment. Finally, outdoor natural spaces are selected for visits and field trips with student safety as a priority. Emergency bags, including first aid kits, medical details, and parental consent forms, are always prepared for trips.

4.5.5 Education Curricula

According to the school principal, the programme initially involved learning within the site, utilising the grounds, gardens, or playing fields as suitable environments for outdoor learning and play. This approach aimed to facilitate a seamless transition for learners, allowing them to acclimate to the forest school outdoor methodology within familiar surroundings. Additionally, the programme incorporated visits to various outdoor natural spaces and field trips carefully chosen to align with learning objectives while prioritising student safety. Moreover, the principal stated that “we identified a compelling initiative within our school aimed at integrating the forest school approach into the curriculum, allocating a significant portion—50%—of school time for outdoor experiences in nature”. By adopting an interdisciplinary methodology fusing scientific, mathematical, artistic, musical, and literary

perspectives, this programme aimed to expand beyond the constraints routinely imposed by singular scholastic domains. Another finding of this interview revolved around the critical importance of ensuring that teachers comprehend the philosophy and underlying significance of the forest school approach. Therefore, the training sessions delve into methods for effectively integrating and linking different subjects within the outdoor learning environment.

4.5.6 Available Resources

The principal confirmed that overcoming this constraint was made possible by preparing each excursion meticulously, including ensuring the presence of an emergency bag containing essentials such as a First Aid kit, medical details, and parental consent forms. Moreover, provisions were made for adverse weather conditions and the needs of young children through the inclusion of a nurture kit, featuring items such as hats, gloves, spare socks, fleeces, hand wipes, and rubbish disposal bags. Adequate hydration and shelter were also prioritised, with drinking water and a shelter sheet supported by ropes readily available. Furthermore, essential equipment such as outdoor clothing, mud kitchen dishes, sorting trays, water play materials, loose parts, gutters, and pipes, as well as bug and insect houses, were indispensable for the effective implementation of the forest school curriculum, facilitating immersive and engaging outdoor learning experiences for students.

4.6 Summary of the Findings

The research findings allowed the researcher to achieve the research aim and the two objectives. The positive effects of nature-based learning on child engagement and educational outcomes were underscored in a survey administered to teachers. Out of 42 respondents, the teachers unanimously affirmed the advantages of incorporating the forest curriculum into

education. These wide-ranging advantages included a heightened sense of self-worth, more refined social skills, progress in linguistic and conversational abilities, enhanced inspiration and concentration, better physical control, and a richer cognisance of the children's surroundings. Challenges with regard to implementing nature-based learning policies and forest curricula were identified through interviews, including consideration of weather changes, safety risks, delays in traditional academic content exposure, teacher training, parental involvement, and the availability of key resources. Strategies to address these challenges involved setting clear boundaries with new parents, conducting training sessions for staff, organising awareness events, maintaining ongoing communication, providing extensive teacher training, implementing continuous evaluation methods, prioritising student safety, integrating the forest school approach into the curriculum, and ensuring the availability of necessary resources for outdoor learning experiences.

4.7 Conclusion

The findings from this research ultimately underscore the considerable favourable influence of nature-centred pedagogy on student participation and academic achievement, as made evident through educators' recognition of the diverse gains linked with a curriculum set within a forest. Nonetheless, while the execution of such initiatives could yield benefits, effectively implementing them in various settings involves diverse difficulties owing to variations in climatic conditions, issues regarding protection, postponements in conveying standard scholarly materials, and constraints involving available means. However, through strategic approaches such as comprehensive teacher training, continuous assessment methods, and prioritising student safety, these challenges can be effectively mitigated.

Chapter 5: Discussion and Recommendations

5.1 Introduction

Building upon the findings identified in the previous chapter, this categorizes the outcomes in respect to the prevailing motifs that manifest themselves from an examination of the data in a way that corresponds to the goals set forth for the research. The chapter divides the discussion into two parts, initially outlining the findings derived from an online questionnaire involving 42 individuals before subsequently spotlighting the key takeaways from semi-structured interviews. Furthermore, positive factors and limitations inherent in the study design are acknowledged and discussed. Ultimately, a series of forward-looking proposals are respectfully advanced for potential scholarly pursuits that would meaningfully extend and amplify the understandings harvested from this particular academic inquiry.

5.2 Quantitative Data Collection

This methodology, which aimed to evaluate the influence of nature-based education on children's participation and on the academic consequences of such an approach by considering both intellectual and socio-emotional facets, was deliberately selected. The questionnaire respondents were teachers, with the vast majority expressing strong support for the forestry programme concept.

Most of the respondents rated the first benefit as “good” indicating a positive perception of the impact of nature-based learning on students’ self-esteem and confidence. The large percentage of respondents who rated it “excellent” show strong support for this aspect of the forestry programme. This study emphasised how exposure to nature can lessen feelings of stress and unease, validating nature-based activities' ability to positively impact children in

such ways. Furthermore, the almost even distribution of responses between “good” and “excellent” indicates a high level of consensus among teachers regarding the positive impact of the forestry programme on students' social skills (Chawla, 2015). Moreover, the predominant rating of "Good" with regard to the third benefit, indicated a widespread belief among teachers in the efficacy of the forest curriculum for enhancing language and communication skills. Similarly, Kim and Koo (2019) highlighted the cognitive benefits of forest schools, including enhanced critical thinking, problem-solving skills, and academic performance, attributing these outcomes to the natural competitive spirit fostered in children. The vast majority of respondents who rated this benefit as either "Good" or "Excellent" clearly displayed a strong consensus on the part of the teachers regarding the crucial role the forest curriculum can play in significantly enhancing children's knowledge and understanding of the vital environment that surrounds them. This is what Mayer et al. (2009) highlighted in their research. The report underscored nature's interventions' promising role as a prudent public health tactic for boosting both physical and psychological wellness. There were generally positive ratings with regard to promoting physical development and motor skills in children, with a majority of respondents indicating "Good" or "Excellent". The study conducted by Haskell et al. (1992) relating to physical activity undertaken in natural surroundings was shown to enhance cardiovascular health, while also developing muscular strength and contributing to general physical well-being. This research underscores how nature-based educational experiences can cultivate both physical well-being from a young age, as well as inculcating regular habits of physical activity by instilling their importance from an early stage.

While responses exhibited variety, a sizeable percentage of those polled viewed the programme as being either "Good" or "Excellent" in terms of character although, at the same time, a worthwhile proportion also deemed it to be within the bounds of "Acceptable" or "Minor". This might be because teachers may encounter constraints or challenges in implementing the forest curriculum effectively, such as limited resources, time constraints, or administrative barriers (Becker & Shim, 2018). These factors may diminish their perception of the benefits associated with outdoor learning. In addition, teachers may observe variability in student responses to forest curriculum activities, with some students benefiting more than others (Dettweiler et al., 2017). Moreover, teachers may have concerns about safety or the risks associated with outdoor learning environments, particularly in forest settings. These concerns may lead them to perceive the benefits of forest curriculum as being relatively minor compared to the perceived risks (Kilpatrick et al., 2022). In line with this perspective, Cain (2011) posited that traditional classroom settings may not inherently foster self-reflection, collaboration, and political engagement among educators. Some teachers have admitted to struggling with integrating self-reflexivity into their professional responsibilities, citing time constraints as a significant barrier.

5.3 Qualitative Data Collection

A qualitative approach was chosen to identify and analyse the challenges faced by the school in implementing nature-based learning policies and a forest curricula, and how these can be overcome. The answers also supported the first objective which was one of “evaluating the impact of nature-based learning on child engagement and learning outcomes, considering both academic and socio-emotional aspects”. The first two questions directly addressed this

objective. Responses to the first question provided insights into how nature-based learning might enhance student engagement and contribute to learning outcomes in various subject areas. Additionally, the participants elaborated on the personal growth and socio-emotional benefits they expected students to experience as a result of engaging with the forest curriculum. Moreover, in terms of the second question, the researcher gathered qualitative data on the potential benefits of nature-based learning beyond academic outcomes. Academic achievement and educational outcomes may be positively impacted for those participants who perceive nature-based education as an effective means of sparking deeper subject interest or driving higher performance, as dictated by their unique experiences within such a learning environment. Similarly, enhancements in socio-emotional wellbeing, such as gains in self-assurance, adaptability, and interpersonal abilities, could underscore the all-encompassing advantages of learning connected to nature with regard to the holistic maturation of pupils. Analysing the responses to these two questions provided valuable insights into the multifaceted impact of nature-based education on students' engagement and learning outcomes, which was consistent with the aim of the study to evaluate its effectiveness in academic and socio-emotional domains.

During the period of this study, two schools in Abu Dhabi promoted the forest curriculum as did one in Al Ain. However, it was hard to reach them. Therefore, one school opinion is not enough to develop a solid result. The participants provided brief responses to the interview questions, limiting the depth of data available for analysis. The brevity of the answers constrained the researcher's ability to explore the topic thoroughly and draw nuanced conclusions. Additionally, the absence of multiple participants for interview purposes further restricted the richness of the data collected. The potential for contrasting perspectives and

insights from having access to multiple participants was not realized due to delays in response and limited participation. In fact, the restrictions imposed on the researcher regrettably forestalled a penetrating scrutiny of the subject from being undertaken, potentially compromising the profundity and persuasiveness of the deductions derived from the work.

5.4 Positive Factors

The study successfully achieved its objectives, which were to investigate the advantages of forestry schools, identify implementation challenges within educational settings, and formulate recommendations for effective practice. Forty-two participants answered the questionnaire, achieving a consensus with regard to six potential benefits associated with the introduction of forestry programmes for children. Challenges were gleaned from interview responses, and corresponding strategies were suggested. Together with the practical insights presented in Chapter 4, these findings empower schools to assess the obstacles they might face and allow them to enact suitable measures for improvement.

5.5 Limitations

The participants in this study were exclusively teachers who had experience of working within a forest curriculum school. It is important to note that the participant demographics might have differed if the study had been conducted across multiple schools and included teachers who didn't work in forest schools. Making use of a mixed-methods study design necessitated considerable time expenditure and intensive data accumulation efforts as described by Creswell et al. (2011). To ensure the timely completion of the investigation, the researcher established a comprehensive timetable. A further constraint of this research was the lag in response from academic leadership, which in turn caused a lag in enlisting volunteers

for participation. Due to this delay, the study timeline was affected, leading to a shorter data collection period than was desirable, and reducing opportunities for participant engagement. In addition, the initial intention was to conduct direct observations of student behaviour and interactions in the forest setting. However, the delay in obtaining approval and cooperation from ADEC hindered the execution of this aspect of the study. Unfortunately, as a consequence, the inability to capture valuable insights into student engagement and their responses to instructional practices may have restricted the degree of comprehensive discernment achievable from the research.

5.6 Recommendations for Further Research

Researchers should consider examining the forest curriculum longitudinally, assessing not only its short-term impact within a single year, but also its enduring effects on lifestyle choices and future practices. Furthermore, there is a need to elevate the prominence of the forest school curriculum to a level where conducting research on a larger, international scale becomes feasible and beneficial. Research could have also concentrated on leadership attitudes to forest schools, in contrast to the ones belonging to individual teachers and principals. More school environments could usefully have been explored and analysed to determine the implementation of the forest curriculum. Consequently, it is recommended that future researchers might consider investigating the potential of applying forest curriculum in government schools.

5.7 Conclusion

The evidence supporting the use of the forest school curriculum is still evolving, with recent interest emerging in evaluating and seeking to understand this aspect of holistic

development (O'Donnell et al., 2016). Previous studies have explored various avenues including local environmental qualities and forest-based education as presented by Luck et al. (2011), the link between immersion in nature and wellness (Capaldi et al., 2014), a comparison of learning situated within forest environments (Luck et al., 2011), and the relationship between submersion into nature and wellbeing (Capaldi et al., 2014), educational experiences among urban and rural youth (Klassen, 2010), the impact of forestry education on psychological resilience (Inguli et al., 2013) and the determinants that influence individuals' engagement in forest-based education (Gifford and Nilsson, 2014). Additionally, the research conducted by Sparks and colleagues (2014) delved further into this topic in terms of how energy consumption habits relate to forest instruction, examining the connection between such patterns and environmental education.

The effectiveness of a forest school curriculum hinges on careful consideration of the school's geographical context in relation to their natural surroundings. For instance, schools in the UAE face unique challenges due to the vagaries of the local climate and limited access to suitable outdoor environments, impacting students' opportunities for nature exposure compared to other parts of the world. Consequently, it becomes imperative to adapt the curriculum accordingly to ensure meaningful engagement with nature. Other considerations may encompass transportation arrangements, the need to ensure suitable attire and shelter, integrating biophilic design elements for indoor settings when outdoor activities are impractical, and providing updates on weather conditions including pollution levels and temperature.

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Appendices

Appendix A

Survey Monkey online questionnaire

<https://www.surveymonkey.com/r/ZBDMVTX>

Teacher's Questionnaire

An Assessment of The Implementation of Forest Curriculum in A Private School in Abu Dhabi, UAE.

Dear teachers,
I am a postgraduate student undertaking a Master of Education Management Leadership and Policy at The British University in Dubai, and I am conducting a study for my dissertation. Here is a brief introduction to my thesis: The purpose of this study is to investigate the impact of nature-based or forest school learning experiences on students' social development, well-being, and physical improvement. The survey aims to gather general opinions from teachers and school leaders regarding the benefits, of forest curriculum on students. To ensure confidentiality and protect the identities of all participants, their data will be anonymized. Rest assured that there is no possibility of

harm to any of the volunteers involved in this research.

All data collected during the study will be kept strictly confidential, and any publications will not contain any personal information or identifying details that would compromise the privacy or confidentiality of study participants.

By taking this survey, you have given your consent to the researcher to study and analyze the shared information as a requirement for obtaining a master of education degree.

Thank you for taking part in this survey
M. Ed. Management Leadership and Policy

1. What is your gender

- ☐ Male
- ☐ Female

2. What is your age group

- ☐ 20- 29
- ☐ 30-44
- ☐ 45-54
- ☐ older than 55

3. How many years have you been teaching at your current school?

- ☐ Less than 1
- ☐ 1-3 Years
- ☐ 4-6 Years
- ☐ 7-10 Years
- ☐ More than 10 Years

4. Your teaching experience in years

- ☐ Less than 5 Years
- ☐ 6-10 Years
- ☐ 11-15 Years
- ☐ 16-20 Years
- ☐ More than or equal to 20

5. Nature-based or forest school learning increases self-esteem and self-confidence.

- ☐ Excellent
 - ☐ Good
 - ☐ Acceptable
 - ☐ Minor
 - ☐ Not at all
-

6. Nature-based or forest school learning improves social skills.

- ☐ Excellent
- ☐ Good
- ☐ Acceptable
- ☐ Minor
- ☐ Not at all

7. Nature-based or forest school learning contributes to the development of language and communication skills.

- ☐ Excellent
- ☐ Good
- ☐ Acceptable
- ☐ Minor
- ☐ Not at all

8. Nature-based or forest school learning improves motivation and concentration.

- ☐ Excellent
- ☐ Good
- ☐ Acceptable
- ☐ Minor
- ☐ Not at all

9. Nature-based or forest school learning improves physical motor skills – fine and gross.

- ☐ Excellent
- ☐ Good
- ☐ Acceptable
- ☐ Minor
- ☐ Not at all

10. Nature-based or forest school learning contributes to children's knowledge and understanding of the environment.

- ☐ Excellent
- ☐ Good
- ☐ Acceptable
- ☐ Minor
- ☐ Not at all

Done

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Appendix B

Interview Questions

Interview questions

1. How long have you worked in this /role; what type of curriculum do you use?
2. How do you see a forest curriculum aligning with the overall educational philosophy and vision of your school?
3. What benefits do you envision for students in implementing a forest curriculum, both academically and personally?
4. How do you plan to integrate outdoor learning into the existing school schedule and curriculum?
5. How will teachers be prepared and trained to effectively implement the forest curriculum?
6. Do you have plans for ongoing professional development to support teachers in incorporating outdoor education into their teaching practices?
7. How do you plan to involve parents and the local community in the implementation of a forest curriculum?
8. What safety measures will be in place to ensure the well-being of students during outdoor activities?
9. How will you address concerns from parents or staff regarding safety in an outdoor learning environment?
10. How do you envision assessing and evaluating student progress in a forest curriculum?
11. What resources, such as outdoor spaces or equipment, will be needed to successfully implement the forest curriculum?
12. What potential challenges do you foresee in implementing a forest curriculum, and how do you plan to address them?
13. How will you handle resistance or concerns from teachers or parents who may be hesitant about this approach?
14. Are there plans for continuous improvement and adaptation based on feedback and outcomes?

Appendix C

Ethics Approval Email

Dear Prof Abdulai

The medium risk ethics application submitted for Afaf is approved with below comments:

Overall, this looks fine but it will be better to explain the concept of 'forest school' in the questionnaire assuming that it would be verbally explained during the interviews. The British University in Dubai and I am conducting research for my doctoral thesis", try to be specific here- master or doctoral?

--

Best Regards

Dr. Godwin Francis

Senior Faculty Administrator
Student Services Team
Marketing, Admissions and Student Services (MASS) Department

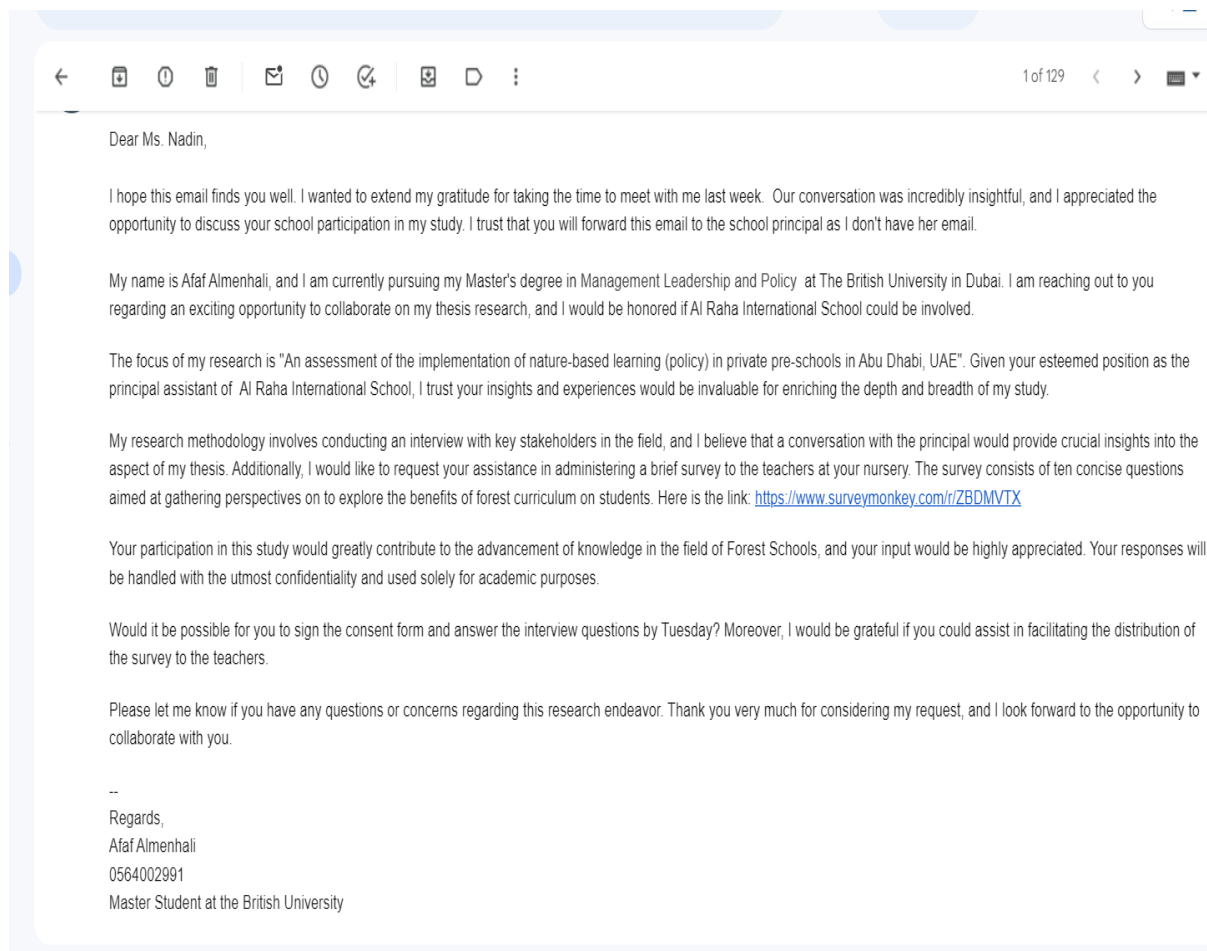
The British University in Dubai
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 Official BUID Logo 1

Appendix D

Email Sent to School



Appendix E

Third Party Consent Form



Third party consent form

Al Raha International School
 Address: Khalifa City 'A, Al Raha Gardens 20th Street - Abu Dhabi - United Arab Emirates
 Telephone: +971 25561567
 Email: gcexecassist@ris.ae

By signing this consent form, I understand that Afaf Almenhali is a ☐ candidate for a postgraduate degree of The British University in Dubai (BUiD). I understand that the researcher is conducting a study titled "An assessment of the implementation of nature-based learning (policy) in private pre-schools in Abu Dhabi, UAE". The purpose of this research is to investigate the impact of nature-based or forest school learning experiences on students' social development, well-being, and physical improvement. The study will be conducted in collaboration with Al Raha International School, and we believe that your participation will provide valuable insights into the benefits of nature-based education.

I understand the findings of this research study are solely the responsibility of the researcher. It is understood that any and all information/data the researcher collects from contacts within and/or about our organisation outside the research protocol will not be part of the research findings. I understand the researcher may publish findings following completion of this study. Any information published will be limited to the findings of the research.

- ☐ I grant the researcher permission to contact members of the organisation for the purpose of requesting their participation in the study as required by the research proposal.
- ☐ I grant the researcher permission to use organisational premises as necessary to conduct the research.
- ☐ I grant the researcher permission to collect, use, and store organisational documentation related to the project. I understand that in granting permission to access organisational documentation, the researcher will store copies outside of the organisation in a secure manner as approved by BUiD's Research Ethics Committee.
- ☐ The researcher will maintain all documentation and findings regarding this organisation in confidence and confine its use to this research study.
- ☐ On behalf of the organisation, I request a final copy of this research report.

 Organisation representative and signature

 Date

Print name and title
 Al Raha International School

Name of Director of Studies:
 Prof Abdulai Abukari
abdulai.abukari@buid.ac.ae

Appendix F

Interview Coding

Interview questions

1. How long have you worked in this /role; what type of curriculum do you use?

11 years, IB curriculum

2. How do you see a forest curriculum aligning with the overall educational philosophy and vision of your school?

Educational philosophy is about allowing children to develop and learn and provide the opportunities that can support the children development to reach their potential. Forest schools supporting this philosophy very strongly by emphasizing the hands-on learning through the exploration of nature. Children are encouraged to initiate their own playful learning as they explore the different sensations and textures of the natural environment around them. The nature is the best school.

3. What benefits do you envision for students in implementing a forest curriculum, both academically and personally?

Learning from and with nature is providing many great opportunities for children to discovers, make their hone choices, it allows a space where they become independent learners who make choices and make decisions. All this promote self-esteem, creativity, confidence, and independence. It enables supported risk-taking, child-centred learning, exploration and play freely. In addition to this forest schools increase child resilience as it provides children with an opportunity to face challenges and overcome obstacles in a supportive and safe environment. This can help children develop resilience and learn how to cope with difficult situations.

As a result of all this, children will be more motivated, creative, they will enjoy their learning in the nature. They will learn science, math and many their stuff from the nature. All this will result in improving their academic achievement.

4. How do you plan to integrate outdoor learning into the existing school schedule and curriculum?

In our school we plan to give at least 50% of school time in nature. Children will learn many topics during this time which include science, math, art, music and literature.

5. How will teachers be prepared and trained to effectively implement the forest curriculum?

We are primarily interested in helping teachers understand the philosophy of the Forest School and understand its meaning. Because we believe that this model can only be applied if we understand its importance and why. We offer many intensive training courses for new teachers on this approach, how to apply it in different subjects, and how to integrate and link different subjects together. Teachers are followed up, attend classes with them in nature, and provide periodic constructive feedback. We also have learning circles, which are small groups that bring together experienced teachers with new teachers to help them learn and exchange experiences.

6. Do you have plans for ongoing professional development to support teachers in incorporating outdoor education into their teaching practices?

Yes we do, as mentioned we offer many intensive training courses to teachers and staff. We follow up with teachers, conduct classroom observations, and analyze students' results. Accordingly, we provide guidance on the type of training that each teacher needs in order to continuously improve his performance. Each teacher must complete, within his professional plan, a specific number of hours of professional training, which is determined based on the strengths and weaknesses of each teacher.

7. How do you plan to involve parents and the local community in the implementation of a forest curriculum?

We communicate continuously with families and we have annual plans that we set to involve parents and families in the school and in their children's learning. Our goal is for parents to be active and contributing to their children's learning and not just recipients. Communication plans include many school activities and events that occur in partnership with families. And meetings with them and giving them the opportunity to attend learning sessions in nature with their children, and providing support in an enjoyable atmosphere. Parents greatly enjoy this experience and find it an opportunity to go out with their children and enjoy watching them engage in play and enjoy the experience. Families are considered essential partners in decision-making, and we have parents as members of the school's Board of Trustees.

8. What safety measures will be in place to ensure the well-being of students during outdoor activities?

We have many things that we do on an ongoing basis and before every outdoor activity, which include, for example, good planning in terms of activities, supplies, settings, and equipment that we need, checking the weather conditions, inspecting the place before taking the children to it, training children on safe behaviors and safety instructions, and training the team is on first aid, and we definitely bring a first aid bag with us, as well as a phone to communicate in emergency situations. We also make sure that children bring protective supplies, such as clothing appropriate for the location and weather, sun and protection creams, water, food, etc. All our staff and teachers are trained in this. Full risk assessments have been carried out for the learning activities.

9. How will you address concerns from parents or staff regarding safety in an outdoor learning environment?

We make sure that all parents are fully aware of the security and safety equipment and our policy that we follow at the school, and we share it with them. We also believe in the importance of continuous communication with all partners, especially parents, to ensure that we listen to them and take their opinions and suggestions, as well as their concerns, in order to find solutions to them. When we receive any concerns from parents or teachers, we take them into consideration, pay great attention, and make plans with the school's security and safety team to ensure these dilemmas are resolved and concerns are removed. We also sometimes amend the school's safe behavior list and safety and security policy based on the opinions of some parents about their concerns.

10. How do you envision assessing and evaluating student progress in a forest curriculum?

We use many methods to monitor students' progress in our school curriculum as they perform and play in outdoor areas and nature. For example, we conduct observations on students' learning and interaction. We also give students several targeted tasks that they accomplish during their experience abroad, and we evaluate them and monitor the students' learning through these tasks. We have a lot of data about student achievement during different stages, which we analyze and consider what it tells us about students' progress in different subjects and different aspects.

11. What resources, such as outdoor spaces or equipment, will be needed to successfully implement the forest curriculum?

The Forest School programme will initially run from our site, grounds, gardens or playing fields potentially if this is appropriate. This allows learners to become comfortable with the Forest Schools outdoor approach to learning and play whilst still in their familiar

surroundings. In addition to the various outdoor natural spaces selected for visits and field trips, which are carefully selected to achieve learning objectives while ensuring the safety of students.

In every trip we ensure we have got emergency bag, including First Aid kit, medical details, parental consent etc. Include nurture kit for cold weather / young children (hats, gloves, spare socks, fleeces, hand wipes, rubbish disposal bags). Water for drinking and a shelter sheet plus ropes is always good. Other equipment like outdoors clothing, Mud kitchen dishes, Sorting trays, Water play, Loose parts, Gutters and pipes and Bug and insect houses are also important to successfully implement the curriculum>

12. What potential challenges do you foresee in implementing a forest curriculum, and how do you plan to address them?

One of the principal concerns hindering the wide adoption of Outdoor Play education is the potential safety risks associated with unpredictable outdoor factors, such as weather changes and wildlife encounters. Outdoor Play prioritizes independent and nature-centric learning, immersing children in experiential activities in natural environments. While this approach has its merits, it has also been criticized. Some critics argue that the immersive nature of Outdoor Play may delay students' exposure to traditional academic content. In addition, the successful establishment of forest School education largely hinges on the availability of certain key resources, with expansive outdoor spaces being paramount. By the good planning and setting the policies and clear procedures.

13. How will you handle resistance or concerns from teachers or parents who may be hesitant about this approach?

Through continuous training and involving them in the transformation process. Apply the transformation gradually. As well as involving them in decision-making and providing them with full support.

14. Are there plans for continuous improvement and adaptation based on feedback and outcomes?

Yes, we have received good feedback from parents, teachers and other staff regarding the activities provided and how it impacts academic outcomes, so we have made a plan to revisit all the activities and review the curriculum to improve the quality of the curriculum and activities. There are also plans to expand the scope of the curriculum to go to study to diversify experiences and natural learning environments. 1(3)

