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Education in Childhood

*Edited by Olga María Alegre de la Rosa,
Luis Miguel Villar Angulo and Carla Giambrone*



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Published in London, United Kingdom



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<http://dx.doi.org/10.5772/intechopen.87330>

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Contributors

Mahfouda Rashid Al Mushaiqri, Zahari Bin Ishak, Wail Muin Ismail, Johanna Heikka, Eeva Hujala, Sanni Kahila, Harri Pitkaniemi, Joyce Mathwasa, Lwazi Sibanda, Brittany S. Hewett, Francesca Granone, Elin Kirsti Lie Reikerås, Bernhard Kalicki, Anke Koenig, John Eric Wilkinson, K. Madhumathi, P. Senthil Selvam, Adriana Carolina Torres Escobar

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First published in London, United Kingdom, 2021 by IntechOpen

IntechOpen is the global imprint of INTECHOPEN LIMITED, registered in England and Wales, registration number: 11086078, 5 Princes Gate Court, London, SW7 2QJ, United Kingdom
Printed in Croatia

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library

Additional hard and PDF copies can be obtained from orders@intechopen.com

Education in Childhood

Edited by Olga María Alegre de la Rosa, Luis Miguel Villar Angulo and Carla Giambrone
p. cm.

Print ISBN 978-1-83969-014-3

Online ISBN 978-1-83969-015-0

eBook (PDF) ISBN 978-1-83969-016-7

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Meet the editors



Olga María Alegre de la Rosa has a Ph.D. in Psychology and a Ph.D. in Information Sciences. She is the director of the University Study Centre for Education in Diversity. She has several national and international publications to her credit. She leads competitive research projects and supervises theses related to the field of quality and inclusion at different levels of the education system. Dr. de la Rosa has co-directed the International Journal of University Teaching and Faculty Development.



Luis Miguel Villar Angulo has a Ph.D. in Educational Sciences. He has national and international publications in the field of teacher training, quality, evaluation, and professional development. He has led competitive research projects and supervised theses on teaching and teacher education. Dr. Angulo co-directed the International Journal of University Teaching and Faculty Development. He is chair of quality assessment and accreditation committees for degrees and universities.



Dr. Carla A. Giambrone is a successful 30+ year CFO/entrepreneur turned psychologist who has followed her passion for creating safe and nurturing educational programs to help people grow and flourish. Specializing in physiological integration and somatic therapies, her work entails creating new pathways to well-being and encourages embodied growth and recovery. A creative therapist and researcher, Dr. Giambrone provides a deep conceptual understanding that promotes sustainable and positive trajectories for her clients and patients. A sought-after speaker, she regularly presents to research communities, boards, schools, and non-profits on topics ranging from employee engagement to increased capacity for change. She is passionate about creating a dynamic community and continues to lend her executive expertise to boards that promote her passions for creativity and education. Her research lines focus on well-being through yoga, promoting biometric specificity for physical activity prescription, and educational best practices throughout the lifespan.

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Preface

Education, starting in early childhood, is a fundamental human right. Teaching and learning enable children to acquire the skills and competencies necessary for their development as adults. Human knowledge makes possible all scientific advances, from innovation in the treatment of diseases and ecological respect for nature to the efficiency of public management and the increase of personal well-being. Education provides people with culture and values, which is what characterizes us as human beings.

The initial education of children is the most decisive stage of the whole educational process because children's minds are in full neuropsychological development. The first five years of life are the essential stage of scholarship. Preschool constructs the fundamental building blocks of the future brain architecture. Once children initiate education in the compulsory preschool levels, the school continues reinforcing parents' emotional support and teachers' enthusiasm, including connection with peers and schoolwork. Furthermore, the school strengthens the inclusive principles of education and encourages autonomy, habits, self-esteem, and emotional self-control. With time and effort, children can learn new conflict resolution, showing the ability to use negotiation.

This book emphasises that early childhood education is a continuous and ongoing process of empowering children to develop their capacities and competencies for social interactions praised as critical for mental and physical health.

Figure 1 shows the organisation of the book's nine chapters and their most relevant content.

Building a research foundation in the early years is a precondition for higher-level learning skill development. In Chapter 1, Kalicki and Koenig highlight the importance of early childhood education and care (ECEC) by stating the need for research infrastructures in the early childhood education system that provide adequate problem-solving tools for learning and problem-solving as an incremental process.

In Chapter 2, Wilkinson proposes three ways to meet the challenges of early childhood education, including reforming the relationship between the public and private education sectors, transforming professional teacher training, and getting parents involved in children's early education.

From the earliest stages of education, the aim is to improve learning and academic performance. In Chapter 3, Madhumathi and Selvam propose learning through play for cognitive development. Gaming reduces school dropout rates in developing countries due to the attraction of video games for students, especially in early childhood education. The authors recommend structured, goal-oriented, and outcome-based video games to enhance children's growth and development.

The worldwide reality of the COVID-19 pandemic is changing multiple educational endeavours. In Chapter 4, Torres Escobar points out that online teaching

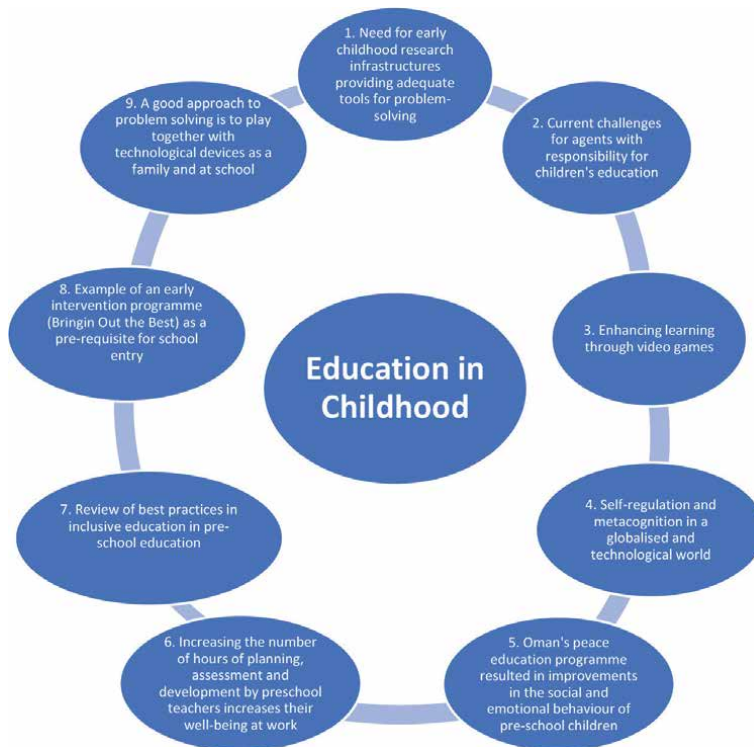


Figure 1.
Flowchart with the organisation and key contents of the chapters.

in a globalised world has shifted to a new online learning style for a curriculum developed in flexible and creative environments and teaching strategies. The author proposes self-regulation and metacognition throughout the educational process as a fruitful experience for all students.

In Chapter 5, Al Mushaiqri, Ishak, and Ismail propose a peace education programme. They justify the need for the programme for preschool children in Oman to develop social and emotional behaviours of peaceful coexistence as the basic principle of its educational policy. They repudiate the war as a means of solving controversial issues. Moreover, the programme presupposes an obligation to refrain from the violence developed on internet communications. It implies renunciation of interference in the internal affairs of peoples of different identities. It also means that the educational relations must be put on a basis of equality and reciprocal benefits. The programme had a quasi-experimental trial, observing improvement in forty children after the practice of the programme.

In Chapter 6, Heikka, Kahila, Pitkäniemi and Hujala state the importance of teachers' time for planning, evaluation, and development (PAD). This time links to staff well-being in early childhood education. They found that PAD working hours have a positive impact on teachers' and school principals' well-being. In addition, the atmosphere in the working community is effective for flexible communication. The authors propose an organizational change by increasing hours in PAD for increasing teachers' well-being at work.

Chapter 7 by Mathwasa and Sibanda deals with inclusive education in early childhood development (ECE) settings. In the field of disability, inclusive education is

a human right. It means all children in the same classrooms, in the same schools. The authors review existing literature and provide a solid understanding of what inclusive education means and what the research shows regarding its implementation and evaluation in ECE.

Chapter 8 by Hewett presents an example of an early intervention programme to support families and children aged 0-5 years is Hewett's Bringing Out the Best (BOB) programme, which aims to prepare children for school entry. The programme aims to increase the number of healthy and ready-to-succeed children when they enter school; therefore, positive reinforcement and social and emotional learning are even more central to the early care curriculum, especially during the COVID-19 pandemic.

In Chapter 9, Granone and Reikerås introduce a qualitative analysis focusing on preschool children's employment of tactile toys as a part of their daily play activities. Toys playfully invite and encourage young learners to physical activity while they learn the logic and skills related to mathematics and language. Toy programming with tactile elements for preschool children favours, in the light of theories related to play and problem-solving, adequate results for their progress.

Early childhood education and care (ECEC) provides the base for lifelong learning and development. We assert that quality ECEC consists of governance, access, staff, educational guidelines, and evaluation and monitoring. We proclaim the right of the child to freedom from all forms of violence and suggest peace education in the curriculum. We underline video games as an activity of the child in ECEC, and finally, we support effective preschool teachers as the factor that most influence the success of preschool programmes.

The editors wish to acknowledge the contribution of the authors who drafted reflective and valuable chapters. We are also grateful to the staff at IntechOpen for their help during the preparation and publication of this book.

Olga María Alegre de la Rosa, PhD.

Departamento de Didáctica e Investigación Educativa,
University of La Laguna,
La Laguna, Tenerife, Spain

Luis Miguel Villar Angulo, PhD.

Departamento de Didáctica y Organización Escolar,
University of Seville,
Seville, Spain

Carla Giambrone

University at Buffalo,
State University of New York,
United States of America

Early Childhood Education

Bernhard Kalicki and Anke Koenig

Abstract

The relevance of early childhood education and care (ECEC) is widely acknowledged in many countries, the number of ECEC settings is expanding correspondingly. This trend reflects the tremendous learning potential during early childhood. Right from birth and during early childhood a variety of learning processes are initiated that foster agency, self-regulation and development. Even the newborn is an active learner, a competent interaction partner and a problem-solver. In line with a deeper understanding of the mechanisms, principles and conditions of learning, early childhood education relies on pedagogical concepts, approaches and didactic methods that promote early learning and development. ECEC settings for young children stimulate exploration and action in everyday situations, embedded in social relations and interactions with peers and with a skilled and reliable pedagogical professional. The expansion and professionalization of the ECEC sector requires establishing a research infrastructure as well as implementing different research approaches at the micro-, meso- and macro-level of the system of early childhood education.

Keywords: Early childhood, Learning, Education, Interaction, Agency, Research

1. Introduction

Early childhood education looks back on a long international history. Early childhood institutions date back to the late 18th century [1]. Right from the beginning, such institutions had two intentions: caring and education. Friedrich Fröbel's (1782–1852) “Kindergarten” was dedicated to the ideas of “self-education” and “self-activity” and was rooted in the philosophy of Romanticism. In this way, early childhood education was considered to be an organic process [2]. On the other hand, housing and emergency relief institutions were established to provide families with a possibility for their children to be cared for and thus solely fulfilled the functions of care and charity [3].

Furthermore, in the history of childhood until today we find a marked difference between early and mid-childhood. This difference considerably affects how children grow up and also how any kind of early childhood education is designed. Accordingly, Michael Tomasello writes [4]: “In the eyes of many cultural institutions and traditions, across many centuries and societies, children's sixth or seventh birthday heralds their entry into the ‘age of reason’”. This shift - still culturally effective today by starting school and formal learning - not only decouples early childhood education from other educational institutions but also works in favour of a differentiated understanding of education and profession.

The motifs of education and care have been defined more precisely only in the recent history of institutionalized early childhood education and care. By

integrating scientific insights, a more reflective understanding of early childhood education has emerged. In particular, results from developmental psychology research have led to this change. Children, as well as toddlers and babies, are socially competent actors right from the beginning. Adults have to respond to children's needs in a sensitive and responsive way. In this context, since the 2000s there is an overlap between empirical insights and the philosophical debate concerning early childhood education. The quality of interactions between adults and children is a key for the educational quality of early childhood education.

Effectiveness studies such as the *Perry preschool* or the *Abecedarian Project*, among others, have shown – over a period of 40–50 years – how sustainable high-quality early childhood education can be for the whole lifespan. At the international level, early childhood education has also become increasingly significant in the context of the demand “education for all” [5]. Since the 2000s, early childhood education in Germany has been the topic of a broad debate arguing that education is a human right and that early childhood provisions should be effective. On the other hand, the growing up of small children has changed most of all because of the rapid quantitative expansion of institutions of early childhood education. The implementation of high quality early childhood education is a challenge still today.

In the following, first a short description of the expansion of ECEC provisions and the increasing demand for places will be given. In the light of psychological and educational theories and evidence, currently debated issues and open questions in the field of early childhood education will be discussed. Lastly, challenges for and approaches to a modern kind of educational research within this action field will be named.

2. The growing significance of early childhood education

Across Europe, ECEC provisions are organized differently. In some countries, ECEC is part of the educational system (e.g. in Belgium, France, since 1968 in Italy and England) and in other countries it is part of the social service (or welfare) system. Furthermore, in several countries, early childhood education and care from birth to compulsory school is integrated in one unified system [6]. In recent decades Europe has moved towards universal access to ECEC for all children [7].

In many countries, institutions of day caring have become a crucial element of the educational system, first only applied to children from the age of 3 until school enrolment (ISCED 0). Accordingly, in the year 2005 the OECD average participation rate in ISCED 0 was 75 per cent, by 2010 it was already 81 per cent, and by 2018 it was 88 per cent [8]. Furthermore, the ECEC provisions for children younger than three years are currently rapidly expanding.

For Germany, the change from a welfare state concept of the system of early childhood education to a concept of the welfare state investing in social issues can be demonstrated [9]. At the heart of the new understanding of ECEC is the support for labour-force participation of mothers and for investments in children by providing early education. The quantitative expansion of ECEC provision has been achieved by massive investment packages, ensuring access and participation by introducing legal rights to a place. Expenses for parents have been reduced drastically, up to implementing free ECEC for an increasing number of age groups in several states.

With the changes in recent history, the obligatory start into the educational system has changed as well. “The last year of pre-primary education has been made compulsory in 16 European educational systems” [1]. Politics has placed its focus on children with a so-called low socioeconomic status [8].

3. Learning during early childhood

Anthropology describes man as a “deficient being” [10] who is born too early and prematurely and thus requires culture as a second, protective skin. The more recent infant research, however, shows that already at birth the newborn is provided with a complete set of reflexes and dispositions for learning, and thus, in contrast to anthropology, one speaks of the “competent baby” [11, 12]. Independent of experience, reflexes allow for protective mechanisms (such as blinking, clinging, grasping), reactions of turning towards stimuli (seeking, sucking), but also for highly complex motoric programmes (stepping, swimming). As a matter of fact, learning starts even before birth. For example, as early as the 32nd week of pregnancy fetuses react to repeated (already known) stimuli by showing reduced neuronal activities and react unabatedly to new stimuli. This habituation is a very basic way of representing experience which is close to a stimulus. Furthermore, there is evidence of early developed olfactory, gustatory and acoustic preferences which are a result of antenatal learning.

3.1 Experience-driven maturation of the brain

The depiction of reality (mental representation) takes place in the cerebral cortex. The development of the neurons is mostly completed by the end of the sixth week of pregnancy, however the synaptic interconnections between these neurons are not. The development of the brain structure in the various areas of the brain happens according to different schedules: the development of the auditory and the primary visual cortex happens during the first months of life, the speech centres develop with a delay, the synapses in the frontal lobes of the cortex, which are in charge of thought, develop throughout the entire childhood. In the course of the maturing of the brain, an experience-dependent selection from the surplus of synaptic connections between the neurons occurs: active connections tend to get stronger, inactive connections degenerate. Only by degenerating unused or inactive connections is the brain able to develop its differentiated and highly efficient structure. These insights have far-reaching implications for the question whether a person's personality and behaviour is genetically determined or acquired through experience (“nature–nurture debate”). As demonstrated by modern brain research, the development of the neuronal “hardware” happens in an experience-dependent way. Thus any one-sided biological determinism is as inappropriate as theories that purely refer to learning and milieu [13]. Educationally relevant is the finding that from the moment of its birth the child is an active problem solver and a learning agent. Perception, movement, thought and action form a unity already within the newborn. And even the development of the first cognitive schemes is based on activity.

3.2 Mechanisms of learning

3.2.1 Habituation

Right from the beginning, the human mind is attracted by new information. New and unknown stimuli evoke neuronal activity in the brain. This neuronal reaction gradually decreases when the stimulus is presented repeatedly. Attention as well as heartbeat and breathing rate decline reflecting a general loss of interest. More or less slight variations can induce a return to a high level of reaction (dishabituation). The mechanism of habituation functions as a very basic differentiation between known and unknown information and as a very fundamental

representation of experience. Habituation and dishabituation can be observed in the third trimester of pregnancy [14].

3.2.2 Classical and operant conditioning

In the case of the learning mechanism of “classical conditioning”, a neutral stimulus which is repeated together with a reflex-inducing stimulus starts functioning as a reflex stimulus. Learning through conditioning works particularly easily and secures survival. The coupling of stimuli to feeding (sucking reflex) is successful from the first months of life, however, the conditioning of avoidance reactions is only successful when the baby has acquired the necessary motoric abilities. Thus, early childhood learning processes are embedded in domain-specific development schedules.

Whereas in the case of classical conditioning the baby selects stimuli from its environment, in the case of “operant conditioning” the baby’s own actions are crucial. Here, learning results from the effects of the baby’s own actions which may support or suppress each respective action. For example, drinking (sucking, licking) a sweet liquid has a supporting effect, taking in a sour or bitter liquid has a suppressing effect. In the course of the baby getting older and step-by-step extending its repertoire of behaviour, the learning mechanism of operative conditioning is extended to an increasingly broader range of reactions and ways of behaviour. When the baby is interacting with its close reference persons (e.g. parents), the mutual reactions of both interaction partners – e.g. the child looks into the eyes of the adult reference person, this person reacts by making eye contact and smiling, which again the child answers by smiling back – result in acquiring and consolidating new ways of behaviour and action skills. It also leads to dyadic communication patterns which rapidly become more complex and dynamic. On this basis, dyadic ties can develop. A disorganised sphere of experience, where the child’s behaviour does not lead to expected and adaptive results, as well as a lack of interaction with adult reference persons can lead to grave developmental disorders [15].

3.2.3 Imitation

Imitation is another way of learning in early childhood. The newborn is already capable of imitating gestures and movements of the head. Sticking out the tongue, opening the mouth or a sad facial expression are imitated two days or a few weeks after birth. Also, the significance of early social interaction and communication is obvious. The different learning processes are always embedded in a social and cultural context [15], which has been obscured by concepts of learning theory such as “stimulus” or “situation”. Social learning theory specifies these learning processes and, according to further developments in the theory, emphasizes how the acting subject contributes to its own development [16].

An enormous catalyst for the development of thought is the child’s ability to direct attention. Already at the age of six months, either in typical play situations or diaper-changing situations, the child directs its attention either towards an object or towards the adult reference person. Two or three months later the object is included increasingly in the interaction. The child and the adult direct their attention towards the object together, they communicate about the object, and they use it in playful interactions. In this context, the child increasingly makes use of the interaction partner as a means of achieving its own goals, such as to get a desired object it cannot get to on its own. Significant for the further development in this context is the emergence of children’s joint attention skills. The child learns how to adjust its attention to the adult’s direction of attention and how to direct the adult’s

attention to things that are of interest to the child. In this interaction process, the adult reference person plays the role of a teacher, who can facilitate the learning and development processes to a great extent. Some authors consider this ability to share attention to an object with another individual the foundation of intentionality and self-reflectivity [15] - this already differentiates the human baby from other primate newborns.

3.2.4 Play

Learning means the appropriation of something new, and the baby has a marked need for new stimuli and experiences from the very beginning. In this context the baby's exploration behaviour is of a playful nature, and during early childhood play it maintains its outstanding significance as a genuine frame for learning processes. Objects (such as a rattle) are focussed on and grasped, they are sensed (looked at, palmed, sucked) with the help of the senses developed at that stage, they are manipulated (turned around, shaken, thrown). By repeating these actions, the characteristics of objects and materials are understood. Being cultural goods, objects have certain meanings and functions which the child acquires in a playful manner. Here, play is characterised as being without purpose and the playing child motivates itself (to a high degree) to engage in this playful action [17]: Playful actions appear spontaneously, in situations of inactivity and boredom, they are started voluntarily and, as soon as the child has delved into play, it becomes fully immersed in its environment. What makes child play meaningful is not the result of the game but playful action as such.

The development of children's play behaviour shows typical patterns, which is why it is possible to determine a child's stage of development from its observed level of playing [18]. Accordingly, "functional play" is the simplest way of dealing with an object in a functionally correct way, such as when the child puts the receiver of a telephone (or of a toy phone) to its ear. Functional play is acquired by imitation. Next, at the level of "representative play", actions are transferred to new situations or persons. For example, the mother or the doll is given the mug for drinking. During "sequential play", topically connected actions are imitated, finally during "symbolic play" any object (such as a toy block) may represent a specific object (such as a car). At the age between nine and 30 months these levels of playing change: functional play is continuously replaced by higher-level play. Child's play is found in the respective everyday cultures of children (in the past e.g. street games, today increasingly game apps on digital devices), but also in cultivated, commercialised and institutionalised forms (parlour games, educational games, various sports clubs). Children's play develops within a social context which is mostly determined by adult reference persons [19]. For example, mothers, when playing with their children, adjust their own supportive actions (demonstrations of actions) to the child's level of playing. This development-appropriate support of playing happens without any advice and without previous training. The spontaneous and usually competent adjustment of the parents' behaviour to the child's stage of development is also found in the context of supporting the child's language acquisition. During the first months of life the so called "infant-directed talk" makes the recognition of speech easier for the child, by using exaggerated intonation, a high pitch, a simple sentence structure and a familiar wording. In the second year of life, language can be used to establish joint attention to an object, which particularly fosters vocabulary learning [20]. Only after the age of 24 months is the child instructed, by so-called "motherese", about the specifics of grammar. Apparently, these patterns of learning support appear across all cultures.

3.2.5 Mental representations as constructions

Constructivist developmental theories further explicate these learning processes. The child acquires and develops its knowledge and its understanding of the world by being confronted with reality. Observations are classified, interpreted and appropriated (assimilation) according to already established cognitive schemes. New, surprising and scheme-incongruent experiences stimulate changes in existing schemes (accommodation). These processes as well as robust developmental sequences are postulated by Jean Piaget, in his theory of stages of cognitive development.

In this context, crucial learning processes happen in the “zone of proximal development” [21]. This zone describes the next level of development and thus the child’s next step of development. Development in the zone of the next developmental step is stimulated by interaction with peers moving within similar zones of development, secondly by development-appropriate stimulations or instructions through an adult reference person, furthermore through a stimulating learning environment, and finally through play.

3.3 Exploration and attachment as complementary systems of behaviour

Attachment research sketches attachment as a phylogenetically preprogrammed behavioural pattern of the child, which at first covers certain affective states and emotions (such as fear, pain) and the corresponding signals by the child (such as crying) which trigger a purposeful behaviour of the adult reference person [22]. Attachment may not be understood as a feature of the child but is a dyadic system which includes the socio-emotional needs of the baby and the reactions of the reference person. By the end of the first year of life, dyadic experiences of interaction result in a specific quality of the attachment relationship. A simple taxonomy distinguishes between four attachment patterns: secure, uncertain-avoidant, uncertain-ambivalent and disorganised attachment. During infancy and as a baby, the child depends on the care of adult reference persons who are in charge of the regulation of its emotional well-being. If the attachment system is activated, such as in a situation of uncertainty or threat, the reference person responds appropriately to the signals of the child with behaviours that contribute to comforting the child. Adult reference persons (typically mothers and fathers) are different from each other according to their degree of sensitivity. A sensitive reaction shows the following elements: 1. perceiving signals from the child, 2. interpreting these signals in the correct way, 3. an effective reaction, as well as 4. immediate reaction. The sensitivity of the reference person proves to be the most important determinant of the quality of attachment.

The functioning of the dyadic attachment system is of outstanding significance for learning processes during early childhood. In situations of uncertainty, irritation or fear the child immediately interrupts any explorative behaviour. Only when the aversive state has been overcome or dissolved, the child turns back to new objects or activities. Thus, exploration and attachment are two complementary systems of behaviour which are important for the child’s development [23].

3.4 Intrinsic motivation and learning

The self-determination theory developed by Edward Deci and Richard Ryan [24] describes the conditions and processes contributing to maintaining and increasing the motivation for learning. The two researchers started out by exploring the question: How might the seemingly innate curiosity be used and facilitated to establish

interest-guided, motivated action? They distinguish different degrees of intrinsic motivation: An action is considered to be intrinsically motivated if it is completely without purpose and performed for the pure joy of action (“integration”). Slightly less self-determined would be an action serving for achieving one’s own purposes, here the person identifies herself/himself with the action goals and accepts the necessary effort (“identification”). Intrinsically motivated only to a small extent would be an action suggested from the outside, such as to avoid trouble and conflicts with third parties (“introjection”). According to the theory, the degree to which intrinsic motivation increases or decreases while dealing with an object, solving a problem or completing a task depends on the satisfaction of three fundamental needs: the experience of competence or a gain in competence, the experience of autonomy or a gain in autonomy; finally, the experience of social inclusion or belonging. In this context, the change of motivation may run into two directions: When experiencing competence, self-determination and belonging the activity becomes more interesting. When experiencing incompetence, heteronomy and social isolation the interest in the matter decreases.

Compatible with this theory of motivation is also the concept of self-efficacy [25]. Dependent on the child’s experiences and the feedback provided by relevant reference persons, the child develops a feeling for its own creative skills and competencies which, in the sense of self-confidence, supports proactive action. In the course of childhood these self-related estimations and self-images become further differentiated, depending on the developmental domain and type of behaviour [26, 27].

4. Early childhood education

All over the world the significance of day care institutions has increased [7]. Today, not only families but also day care institutions crucially influence how young children are growing up. These developments are also viewed critically, and it is emphasized particularly that children should not be degraded to become sheer addressees of adult ideas on how to educate and raise children. The organization of the generational order of the different age groups, such as adults and children, in modern society moves into focus [28]. In the course of these debates, theories of an organic development during childhood as well as mono-dimensional ideas of education lose their significance. Findings from more recent psychological studies indicate that for early institutional education the various opportunities for young children to interact with adults and peers must be taken into consideration instead [29], and that an understanding of relations which is based on sensitivity is of high significance. Against the background of these insights, early childhood education establishes a socio-cultural understanding of education and learning. Basically, these models refer to Lev Vygotsky [21] who closely relates cognition and sociality to each other and attributes particular importance to the development of (order through?) socio-cultural activities. Also, the studies by Jerome Bruner [30] and Barbara Rogoff [31] are of outstanding significance for developing an idea of bringing up and educating based on the perspective that children are social actors. These theories have recently been boosted by the studies of Michael Tomasello [4]. In his research he connects to these theories and develops them further towards a neo-Vygotskyan approach. Right from birth, he describes human development as a close interplay between evolutionary and cultural dynamics of development. The dialectical logic is a basic element of socio-cultural theories [32]. That is why they are so appropriate for understanding educational processes. Man’s flaw – not being able to survive without other humans – is at the same time also man’s strongest

point. Being socially referred proves to be a core element of the human species and a driving force of culture. A reflective kind of early childhood education takes up these insights and makes use of them not only for a modern understanding of education but also connects a differentiated understanding of educational relations to it – an understanding which is aware of the powerful responsibility of adults and the fragile dependence of young children [33].

4.1 The quality of educational interaction

The extension of institutionalised early childhood education is greatly influenced by education policy debates. Children have a right to high quality early childhood education as well as to institutions of high educational quality [1, 34]. Since the beginning of the 2000s and triggered by the post-PISA debates, early childhood education is at the heart of European educational policy. In Germany, these debates had their peak e.g. in the decision by the 16 state ministers to develop a “Common Framework for Early Childhood Curricula” [35]. This decision supported the introduction of educational and orientation curricula which, at the structural and topical level, were a significant innovation as they strengthen the educational tasks of day care centres. These changes were fostered, among others, by the OECD’s “Starting Strong I” study and initiated debates on improving the quality of early childhood curricula under the perspective of “lifelong learning”. With the publication “Starting Strong: Curricula and Pedagogies in Early Childhood Education and Care Report” [36] a consensus was achieved that communication, collaboration and creativity must be at the heart of early childhood-educational approaches.

For a long time, quality research on institutionalised care was most of all interested in clarifying how non-family caring affects young children. The appropriate studies emphasized that attending a day care institution had a positive influence on the intellectual development of young children, even influencing later academic skills [37]. From the 1980s on, such studies – particularly in the English-speaking countries – were increasingly designed to assess the quality of the experiences of young children in non-family caring [38–40]. Thereby, the study approaches became more complex. More recent studies emphasize that not only attending an institution but the stimulations the children are provided with while engaged in direct social relations and interactions exert a strong influence on their development [38]. Also, the interplay of domestic and non-family care plays an important role for the studies on early childhood development. The effects of ECEC on child development seem to be conditioned to high quality. Some studies identify a higher potential for children prone to so called socio-economic risks [41]. At the international level, high quality ECEC appears to be most effective regarding cognitive performance [38]. The fact that in this field socio-emotional indicators can be less satisfactorily depicted might, among other factors, be due to the fact that these indicators are more difficult to assess [40]. Longitudinal studies such as the “Effective Pre-School, Primary and Secondary Education Project” (EPPSE 3–16) provide evidence for effects of early childhood education reaching as far as adolescence [39].

Like in other fields of education, the analysis of the quality of early childhood education is nothing new [42]. However, so far no sustainable education research has been established in this field that goes beyond the initiative by individual actors. Also, the development of tools for assessing quality lags behind compared to the strong expansion of day care. One of the oldest and still internationally most frequently used tools for the measurement of quality is the “Early Childhood Environment Rating Scale” (ECERS) [43]. As early as in the late 1980s there were different attempts to replace the dualism of programmes in the field of early childhood education by a debate on quality. In the tradition of this scale, further

tools have been developed – which in particular address the process quality of everyday business in day care institutions. Among these is a scale for younger age groups (ITERS for children below the age of three), for different academic domains of education (ECERS-E) or concerning the quality of interaction and well-being (SSTEW). Furthermore, the Classroom Assessment Scoring System (CLASS) [44] for recording process quality has been developed. Meta-analyses show that process quality varies much between as well as within individual countries. In all countries, the quality of institutions of day care lags behind their expansion. Currently, comparative studies from different countries do not provide a common answer to the question, which structural factors particularly influence process quality. Professionalization, structural and socio-economic factors are influential to different degrees in different countries [45–48].

4.2 Implications for pedagogical practice

The various studies on ECEC quality attribute a high significance to the organization of the interaction process between adults and children for the development of small children. Well-founded insights on early parent–child interactions have been provided by attachment research, among others. When it comes to caring for children younger than three, a meta-analysis [29] reveals that the sensitivity displayed in interactions is also significant for the interactions between ECEC professionals and children, although the character of caregiver-child attachment is somewhat different to parent–child attachment, due to the fact that the dyadic relationship in a group context is less exclusive. In this context, Ahnert [47] emphasizes group-orientation as a crucial feature.

4.2.1 Sustained shared thinking

Also concerning children older than three, the quality studies indicate a closer connection between direct interaction and children's cognitive development. In particular, the “Sustained Shared Thinking” (SST) interaction format has become highly significant for the shaping of educational and learning processes during early childhood. This interaction format was identified by analyzing observation data collected in the British longitudinal study on “Effective Preschool and Primary Education” (EPPE/EPPSE) [48, 49]. In the EPPE study, the educational quality (process quality) of ECEC institutions was assessed with the ECERS-R and ECERS-E [50]. The SST interaction format goes back to categories of “instructional techniques” worked out in the context of the EPPE project. In the course of doing so, the following sub-categories were outlined: demonstrating, telling and dialogue [51]. Bringing together the different sub-categories to form the SST interaction format explains the high degree of complexity while at the same time describing the competences required by professionals (e.g. preschool teacher).

Siraj-Blachford [52] defines sustained shared thinking as “an episode in which two or more individuals ‘work together’ in an intellectual way to solve a problem, clarify a concept, evaluate activities, extend a narrative etc. Both parties must contribute to the thinking and it must develop and extend.” SST is a kind of cognitive cooperation. It requires active participation by the interaction partners and aims at solving problems by jointly considering them. SST also aims at finding definitions or assessments of events. In the course of a co-constructive process, ideas, stories and experiences are exchanged, extended and newly developed. According to SST, the balance between (child-initiated) free play and adult-structured learning phases is emphasized [53]. Solving problems or tasks together may be accompanied by educational professionals who apply strategies that facilitate language development

in everyday situations. One important strategy involves asking open questions (e.g. What do you think ...?). SST covers the co-constructive processes of understanding and scaffolding, through which educational professionals create a theoretical scaffold to purposefully support children in their acquisition of knowledge. Additionally, the dialogue component of this teaching-learning method supports the establishment of knowledge. For the time being it is still an open question if in these situations it is the children or the pedagogs who promote learning by social interaction. It is also an open question if in this case there is a more sensitive reaction to weaker children or if an important potential of educational interaction stays unused and if, thus, the children are provided with fewer learning stimuli, which inhibits their further development. There is empirical evidence that the following aspects influence the learning processes positively [48, 49]:

- Adults create a relaxed socio-emotional atmosphere.
- Educators at the institution are highly skilled.
- The learning arrangements are suitable for both the educational domains (literacy, language, mathematics) and for social development.
- In the individual settings, interactions between educational professionals and children are characterised by sustained shared thinking (SST), which may provide an optimum of support for children's learning.

SST pursues several principles: on the one hand, a particular kind of sociality, such as a dyadic connection of the educational professional and the child or the small group dealing with each other is connected to it. Furthermore, dealing with each other in a cognitive way (jointly referring to an object) is considered important. In this context, there is particular emphasis on processes of problem-solving, clarifying situations, assessing or describing activities as well as on inventing stories. These principles – as demonstrated by the studies by Iram Siraj – are positively connected to children's learning processes. Thus, this interaction format or the implementation of these principles is of great significance for the shaping of interaction processes in the field of early childhood education. SST requires much involvement of those participating in the interaction process, which is characterized by the actors jointly focusing on one subject and exchanging their ideas, opinions etc. on it. Crucial for this interaction format is the key word “sustained” which refers to the broadening of perspectives. In addition, the studies share an understanding of interaction that is also part of many qualitative studies e.g. [54, 55]. The reciprocity of the interactive relationship is a basis for a stimulating learning process. Salminen et al. show this with children under three years: “Scaffolding children's actions, thought processes or educational dialogue seems to require different types of educator engagement” [54]. A systematic review of teacher-child interaction with multilingual children [56] illustrates these challenges as well.

4.2.2 Informal learning

Education embedded into everyday situations in day care institutions relies on informal learning processes. For early childhood education, this approach is supported by findings of recently published effectiveness studies. The SST interaction format describes the quality of exchange in a differentiated way. Mutual interactions or dialogue, i.e. staying with the child, are crucial for effective and sustained informal learning. The empirical findings can be explained in terms of

socio-cultural theories. At the same time, however, these conceptions also point to blind spots of the debate. For example, current educational research does not take sufficiently into consideration how the peer group, or the social group in general, influences learning and how young children experience social inclusion. Concerning the care of children under three, differentiated models have already been described [29, 47]. Also, for children older than three the relationship between the professional and the child is not an exclusive one. These insights are important for considering appropriate group arrangements and effective conditions for informal learning. The strong orientation towards a school-oriented teaching-learning research (formal learning) does not seem to be sufficient for the analysis of informal learning processes of young children.

Education embedded in everyday situations has an inclusive orientation. Fundamental for this is an orientation towards diversity education as well as an understanding of education which is based on human rights and democratic values. Inclusive approaches take into account the basic human rights principles and democratic values. Any early childhood education based on dialogue and exchange must also include the complex interactions within the social group, where exclusion from or participation in interaction emerges. Participation in education focuses on economic, socio-cultural and gender equality regarding the access to educational institutions. Participation puts the inequality of generations into question – “that is the powerful responsibility of the older and the vulnerable dependency of the younger generation” [57]. Socio-cultural learning can be related to a relational and transgenerational perspective. Here the potential for participation within the informal setting of day care institutions become obvious. The mutuality of interactions, joint attention and cooperation are typical features. Typically, participation is demonstrated by “listening” and by “the children influencing” the interaction process. Sharing and appropriation of knowledge are crucial aspects of cultural learning. Thus, this kind of learning shows features of implicit, explicit, and also intentional learning. Children may experience this kind of learning both with adults and with peers, particularly while playing children may experience various types of participation. The research on “peer-culture” [58] and on “co-construction” [59] is fundamental for these insights. These underlined action patterns are not a matter of course, not even in the context of play. The implementation of a qualitative, inclusive early childhood education requires well-trained professionals who have not only developed a sensitive educational practice but also have scientific reflective skills, so that they are able to acquire a differentiated understanding of the system of education and are able to integrate sustainably insights from educational research into everyday practice.

5. Conclusions

Day care for children has changed much over the past decades [48]. Among other reasons, this is due to effectiveness studies that have increased the interest in early childhood education. However, a practice which is only based on empirical evidence runs the danger of losing the core qualities of early childhood education, which in particular include informal educational and learning processes. Early childhood education is different from learning in higher age groups. Tomasello [4] refers to a neo-Vygotskian approach. He describes human development as a close interplay between evolutionary and cultural lines of development, starting immediately after birth. The dialectical logic is a basic element of these socio-cultural theories [31]. Sensitivity and the opportunity to play are also highly relevant. Thus, it is a crucial challenge to move into focus on those criteria that are particularly

emphasized by research, namely high-quality relationships and interactions (process quality). Under such conditions, the potentials of (academic) education could be increased [39], and children and their families can experience better participation and social inclusion. An inclusive early childhood education formulates its educational concepts based on the core idea of social coherence. Never before in history has the right to education for all been proclaimed as clearly as in the more recent publications of the United Nations [60].

To this end, awareness has been raised in recent decades and the number of institutions has increased. Today ECEC is part of an established infrastructure in many countries. Nevertheless, when it comes to early childhood education, there are still enormous differences in how well this infrastructure is developing. Differences exist between rural and urban areas and according to the wealth of the society. Since 1999, globally we have observed a rise in the number of pre-school institutions. Also, research on process quality shows how much practices in individual countries can differ [47]. Establishing sustainable educational research is crucial to better understand barriers within the educational system, also in early childhood education. In the field of childhood education, educational research is indeed nothing new – investments into this field have been made as early as the first Head-Start projects. Nevertheless, up to this day it has not been possible to establish a sustainable and comprehensive educational research in this field, with a permanent research infrastructure independent of education-political cycles and not limited to effectiveness studies. Science intended to improve educational practice is the precondition for professional education. Since the development of education in the 18th century science has been aiming to develop a theory of educational practice that is a different of practical work. Education requires practical orientation and research effort [61]. It means reflecting on the education and bringing up of children. As far as early childhood education is concerned and in contrast to other sectors of educational science, this target has not yet been met. Early childhood education as a discipline must be strengthened. As long as the training of early childhood professionals is separated from research and science, the transfer of insights gained by research as well as the establishment of a scientific-reflective early childhood education will remain difficult [62].

Establishing sustainable educational research must happen against the background of these debates. In this context, also the differentiation of the system of early childhood education must be taken into consideration [63]. Theoretical reflection combined with empirical monitoring and analyzing of pedagogical practice seems to be a promising way to face the challenges of early childhood education for the 21st century. This chapter tried to outline the practical value of scientific research on learning and development for ECEC practice.

Sustainable educational research provides descriptive, explicative and operative knowledge [64]. Apart from official statistics, replicative surveys and prospective panel studies are crucial to disentangle effects of social change, ontogenetic development and pedagogical program and intervention. In this context, both large-scale studies and more sophisticated studies taking a deeper look into pedagogical interactions are necessary. Multiperspective study designs are essential in order to analyse the interplay of contexts and socialization agents (e.g., family and ECEC). A biographical or life-span perspective is suitable in order to analyse developmental and institutional transitions (e.g. entering ECEC, entering school). Insight into the complex interplay of contexts and institutions over time will only be possible utilising differentiated research approaches at the micro-, meso- and macro-level of the educational system. Micro-level studies focus on the direct interactions between educational professionals and children, on educational practices and routines. Meso-level studies take a differentiated view at organizations. Finally, macro-level

analyses integrate the wider context including the sub-systems of professional training and further education, providers, stakeholders and governance of the ECEC and the broader educational system. Also, these analyses require profound and sustainable research funding.

Notes

Parts of this chapter are based on a paper published in a German pedagogical journal [65]. We thank Mrs. Carolyn Seybel and Mrs. Tine Fassomytakis for comments to earlier drafts of this chapter.

Author details


Bernhard Kalicki^{1*} and Anke Koenig²

¹ German Youth Institute (DJI), Munich, Germany

² University of Vechta, Vechta, Germany

*Address all correspondence to: kalicki@dji.de

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Contemporary Challenges for Education in Early Childhood

John Eric Wilkinson

Abstract

Over the past two centuries the Age of Modernity has dominated intellectual thought and related actions predominantly in the English-speaking world. It is now becoming increasingly recognized by academics and powerful organizations both nationally and internationally that the consequence of this mode of thinking has generated immense problems for the contemporary world. The level of social and economic inequalities that continue to increase has now become the concern of many, particularly those who identify with the thinking and ideas associated with the emerging Age of Post-Modernity. The challenge to Education is profound not least so in how young children's awareness, knowledge and understanding about the society in which they live is transmitted, often unwittingly, initially in families and subsequently in kindergartens and schools. This paper first addresses the main social constructions of childhood that can be identified in democratic countries and then links these constructions to the three dominant ideologies that exert axiomatic influence on the education process in different countries. Emerging from this brief analysis the paper identifies three fundamental and important challenges to those with responsibility and influence on young children's education be they in governments, educational institutions or families.

Keywords: young children, education, ideology, postmodernism, social justice, social responsibility

1. Introduction

It is a characteristic of our common human identity that young children are endowed with a high level of curiosity and are eager to learn. Making sense of their world is critical not just for their well-being but for their very survival. How the adult world responds to this is overwhelmingly crucial that has been recognized for generations and enshrined in the famous Jesuit saying: *give me the child till he is seven and I will give you the man* [1]. Yet, history tells us that children have not always been treated positively at the hands of adults. It was the philosopher Jean-Jacques Rousseau at the end of the eighteenth century in his iconic book 'Emile' who challenged the prevailing social attitude to children at that time as being born in sin, the consequence for the adult world being to make children good [2]. Rousseau turned this deeply embedded attitude on its head and advocated that children were actually born good with the consequence that it was the responsibility of adults [and Education] to keep them good and shield them from evil.

History also tells us that the adult world's responsibility to children has often been wanton. In the nineteenth century when the industrial revolution in the

western world was at its height children as young as five years of age were sent to work for long hours in factories. They were treated as slaves. In the twentieth century children were often regarded as a necessary nuisance. *Children should be seen and not heard* was the social attitude of the adult world at that time. Even in contemporary times, the abuse of children by adults is all too frequently evident. It is beyond belief to any reasonable person that not an insignificant number of adults get gratification by inflicting children to profound traumas. Less dramatic but of equal concern is the attitude of many parents that it is their right to be able to punish children physically for behavior considered unacceptable by inflicting pain, a 'right' that was very recently overturned in Scotland by legislation making it illegal for parents to smack their child [3]. But, for the vast majority of children, childhood can be a happy and challenging time which, at last, is being recognized by governments and society at large. There is widespread determination and resolve to provide children with experiences that will have positive proven long-term effects on the quality of their lives. How these experiences are designed largely depends both on our understanding of childhood and the prevailing ideology in any given society.

2. Constructions of childhood

It was the work of Berger and Luckman [4] that first alerted scholars to the fact that the adult world through culture and ideology imposes conceptual constructions on different groups in society. Childhood and senior citizenship are two examples. Different cultures attribute different characteristics to the different stages in the human life span (for example, innocence in the case of children, relative helplessness in the case of senior citizens) such that their individual members are treated in the context of these constructions often in conflict with their actual reality. In terms of childhood, social constructionism seeks to understand how children and knowledge about childhood is constructed by whom, why and most substantially what purpose it serves [5]. The social construction of childhood plays a powerful role not only in shaping the experiences afforded to children by the adult world but also in the emergence of their individual identities (*what* am I?) and subjectivities (*who* am I?). This powerful process of cultural socialization takes place at the hands of both parents (and carers) and the architects of education- teachers, administrators and politicians, often subconsciously.

Any specific social construction of childhood is not universal. It differs remarkably in different parts of the world. Childhood is neither universally similar nor natural rather it is tied close to social circumstances and cultural process [5]. Such cultural process forms part of what Bronfenbrenner described as the macro-level of social influence in his work on the ecology of childhood [6]. In the contemporary world, it is possible to identify three macro constructions of childhood: the *tabula rasa child*, the *developing child* and the *agency child*. Each one of these constructions have fundamental implications for Education. They exert a significant influence on how education is defined, understood and practised in different countries.

The *tabula rasa* construction of childhood basically regards children as 'empty' vessels that have to be filled with knowledge and skills through a process of instruction augmented by extensive assessment. It has been and continues to be a very evident construction in Asian countries. At the elementary school stage, the learning space in schools has been organized in a traditional way with individual desks facing the front of the classroom in which the teacher was expected to impart the subject knowledge of the 'lesson'. Furthermore, many parents considered this to be the 'right' way that their children should be educated. To this day, parents in Asian

countries exert pressure on their children to get high grades in a formal 'test-loaded' pedagogy as their child's life-chances depend on such grades. It comes as no surprise that the performance of children in the fields of math, science and reading in the tiger-economic countries such as Singapore, Japan and Hong Kong are at the top of international league tables such as PISA [7].

The *developing child* construction regards childhood as a period in the human life span when children naturally pass through universal and sequential stages of development. One of the chief proponents of this construction was the Swiss psychologist Jean Piaget whose work contributed to the growth of the academic field of activity known as Developmental Psychology. It was considered that children's natural maturation processes interact with their experiences of the world which then make them 'ready' for the next more mature stage. One can find this construction of childhood very much in evidence in public documents and institutions in countries such as the UK and the US and is often embedded in the documentation of national guidelines for teachers in the early childhood education and care sector (ECEC). One consequence of this construction was the emergence of 'child-centred' and progressive education. In the 1960's national reports issued by educational review bodies set up by the UK Government [8, 9] trumpeted the virtues of locating the child's needs at the centre of the education process. Children's natural curiosity and the desire for understanding had to be respected in the form of learning through experience and activity. Although this approach to the education of children was formally accepted in the 1960's, it had been advocated in a formal review of Primary Education some 30 years previously which recommended that the curriculum is to be thought of in terms of activity and experience rather than knowledge to be acquired and facts to be stored [10].

The *agency child* construction is relatively new and has emerged from Scandinavian countries in the last 25 years, particularly in Sweden. Fundamentally, 'agency' is a mind-set that *brings us face to face with the political question of how we can motivate ourselves and others to work for social change and economic justice* [11]. In Sweden, children are encouraged to learn how to take control of their own lives through a process of self-formation such that they consciously resist the 'technologies of domination' that operate in society [12]. Central to this process is the importance attached to democracy at all levels of society. Children are taught from a very early age not only about the importance of democratic decision-making but they are also taught to be critical and to question the authority of grown-ups. Children's 'voices', their opinions and their preferences are given validity not only throughout the Education system in Sweden but in individual families even when children are young [13].

Each of the above constructions of childhood is both culturally and ideologically located. How any given society at any given time endorses a specific political ideology determines which construction of childhood plays out in the ecology of children's lives though in many societies there is an on-going conflict between different constructions particularly in the US. In most countries throughout the world the State now plays an active role in determining what counts as Education. It is part of the ideological State apparatus first articulated by Althusser [14] to maintain social order and stability.

3. Ideology and early childhood education

A major challenge for ECEC is the ideology in which both the policy and practice are rooted. The term 'ideology' emerged from the political and revolutionary turmoil in France at the end of the eighteenth century [15, 16] though as a concept it was first used by Francis Bacon in the sixteenth century. It was originally associated with a

profound shift in a 'world view' from an essentially disposition based on superstition and religious dogma to a disposition based on scientific and logical thought rooted in the Scottish Enlightenment associated with two Scottish philosophers Adam Smith and David Hulme [17]. It is a disposition that initiated the period of intellectual thought now known as 'Modernity' in Western and other English-speaking countries and resulted in significant financial prosperity for some and devastating poverty for others. However, during the subsequent 100 or so years its meaning evolved into its present conception based on fundamentally different sets of axiomatic principles concerning a society's social and economic arrangements in particular the relationship between the State, its institutions, the family and the individual.

In present-day democratic and capitalist countries policy and practice in Education, particularly in ECEC, has been influenced by three dominant political ideologies which are competing for our future. They are: Conservatism, Liberalism and Social Democracy. Each of these ideologies has a set of powerful social and economic principles, often adopted by people with fervent belief though there are significant contested variants and overlaps both within and between them [18].

Of the three democratic ideologies conservatism has perhaps the longest lineage in history. Its variant or extreme form, referred to as neo-liberalism, has been and continues to be highly influential, particularly in present-day USA [19, 20]. In basic and perhaps over simplified terms, one of conservatism's dominant principles is often referred to as the *laissez-faire* principle. This means that the State should play a minimalist role in social and economic affairs and allow individuals to flourish whose behavior is driven by self-interest and the accumulation of wealth and prestige. Extensive provision of welfare is regarded as counter-productive to encouraging self-discipline and the 'work-ethic'. Welfare should only be provided by the State as the ultimate 'safety net'. The family or private foundations should take responsibility for supporting the vulnerable by providing the necessary welfare. In its more extreme form (that is, neo-liberalism) 'market-forces' should be encouraged not only in business and financial institutions but also in social services particularly in education, welfare and often health. Secondly, a society's prosperity is generated by unregulated competition as competition encourages greater efficiency and value for money. Thirdly, inequalities of wealth and prestige reflect 'natural' human differences so it is inevitable that some people will become wealthy and some people will become poor. The State should therefore refrain from initiatives in 'social-engineering' as they are doomed to fail. Fourthly, priority should be given to the maintenance of law, order and respect for a strong hegemony where citizens know and accept the existing social hierarchy.

In contrast, at the heart of Liberalism is the freedom, well-being and welfare of the 'individual' though there is some divergence between the original principles of Liberalism and individuals being liberal-minded [15]. It is taken for granted that if individuals seek to improve themselves morally, socially and educationally society will also improve. Liberalism maintains that the State should allow individuals to be free to choose their own life - style, to be free to express their views/opinions without fear of punishment or recriminations as these matters, according to Liberal ideology, make a profound contribution to the 'sum of human happiness'. In addition, citizens in a democratic society should be allowed to choose how they are governed by the State as this principle is the bedrock of democracy. Coupled with this, people are expected to be self-reliant, tolerant and to show respect for others. Cooperation at all levels of society, respect for human rights and social justice and the provision of welfare for the vulnerable are also basic principles of Liberal ideology. Critically important for Education is that the State should pursue policies aimed at providing opportunity for all irrespective of 'race', gender, socio-economic status, sexual preference and disability.

Social Democracy, described in the UK as the Third Way [21], is a relatively new ideology and has some overlap with Liberalism. The hallmark of Social Democracy is the concept of the *Managed State* whereby the State promotes social inclusion, social justice and individual happiness such that every citizen can participate, should they so choose, in fair and free social services (including Education, medical services and leisure activities) provided by the State throughout their lives. Inevitably such universal provision by the State requires citizens in employment to pay relatively high taxes in countries where Social Democracy is dominant, for example, in Sweden. However, Social Democracy should not be confused with the ideology of Socialism where the State controls the social and economic affairs in the name of egalitarianism. Under Social Democracy individual choice is paramount. In addition, throughout government, its institutions and the family there should be no authority without democracy. The application of this principles requires anyone who is invested with authority such as parents, teachers and school principals to negotiate their decision -making with students and children and not to resort to authoritarian dogma.

In countries where conservative ideology is highly influential, the *tabula rasa* construction of childhood is highly visible. This is reflected in both the policy and practice of ECEC. In many ECEC establishments there is an overwhelming emphasis on instrumental learning where young children are expected to acquire both knowledge about their world and skills to operate in the world [22]. This has been the *modus operandi* both in many Asian countries and recently in sections of US and UK societies, particularly in the private sector of ECEC provision where parents can exert considerable influence by financial means. As a result, childcare markets with their business priorities have been created which appeal to narrowly defined individualized self-interest where parents are treated as consumers. *Accompanying the rise of the market has been a discourse of childcare as a commodity—a commodity marketed and sold to its consumers (read parents) as a private benefit* [23].

In the US the origins of this development can be found the federal report *Good Start, Grow Smart* [24] which called for *state agencies that receive federal dollars to provide education programs for children three to five to develop early learning standards on pre-reading, language skills and mathematical knowledge* [22]. As a consequence, children's performance on academic type tests in ECEC became the marker of the success of the ECEC system thereby severely limiting children's learning experience to instrumental learning to the detriment of experiential learning in terms of affective, esthetic, emotional, and social learning. If a kindergarten was failing to meet the set standards many parents were eager to transfer their child to the private sector if they could afford it. This is also the situation in Taiwan where the cost of sending a young child to a high-status kindergarten in the private sector can be four times more than the annual fee for a university place for an older child [25]. However, many professional ECEC educators, particularly in the US, have challenged the childcare market mentality by raising the awareness of teachers in training to the limitations of this approach as it does not help children to become critically engaged democratic citizens [22].

In contrast to the above, Liberal ideology with its emphasis on the individual and alignment with the *developing child* social construction of childhood has a very different perspective on Education. It became dominant in the UK in the 1960's and played a powerful role in reshaping the entire Educational systems in three of the countries that are constituent parts of the UK, that is, England, Wales and Scotland. As far as ECEC was concerned a pedagogy firmly rooted in a holistic approach by supporting young children to learn through play was universally adopted. Instruction and formal assessment by 'testing' children had no place in ECEC. In Scotland, **Figure 1** shows the aims of ECEC which were set out by Government in 1994.

- Provide a safe and stimulating environment in which children could feel happy and secure
- Encourage the emotional, social, physical, creative and intellectual development of children
- Promote the welfare of children
- Encourage positive attitudes to self and others and develop confidence and self-esteem
- Create opportunities for play
- Encourage children to explore, appreciate and respect their environment
- Provide opportunities to stimulate interest and imagination
- Extend children's abilities to communicate ideas and feelings in a variety of ways

Figure 1.
Aims of pre-school education in Scotland [26].

These aims were subsequently incorporated into the national curriculum guidelines for children aged 3 to 5 and adopted by ECEC establishments in both the public and private sectors [27]. To the present day, the aims outlined in **Figure 1** act as a yardstick for a 'quality' ECEC experience. They are fundamental to the recent re-structuring and integration of the school curriculum in Scotland referred to as the *Curriculum for Excellence* [28] in which the same eight themes are common to the schooling process from age 3 to 18. However, as in many countries, the availability of ECEC services is based on a mixed economy model that consists of public, private and voluntary services with the provision of childcare regarded as a form of social welfare for children in vulnerable circumstances. Although ECEC services in the UK are now free and universally available for all children aged 3 to 5, the provision financed by the State is only available on a part-time basis.

The *agency* social construction of childhood is very much evident in the ideology of Social Democracy which emerged in Sweden in 1995 with the election of a Social Democratic government. In Sweden, Education from the age of one (with no upper limit) is virtually free for all children and adults and funded by the State. In a child's first year of life parents are entitled to generous parental leave allowance from work with return to their job protected by law after one year. All children are entitled to six years of full -time ECEC before formal schooling starts at the age of 7. Whilst ECEC in Sweden endorses many of the educational aims associated with Liberal ideology (see **Figure 1**) it gives much greater priority to children learning about democracy, social justice and the environment from an early age. Listening to 'children's voices' is very much part of day-to-day activity. Another hallmark of education under the mantle of Social Democracy is the concept of integration. The curriculum from age 1 to 18 is integrated and the same themes are used throughout the schooling system. Welfare (when needed) is integrated into all ECEC provision. In Sweden, children are encouraged to express criticism of the experiences provided by adults without fear of recrimination and without the adults feeling threatened. It is not surprising therefore that the Swedish system of ECEC has been widely applauded [13]. Neither is it surprising to find that children in Sweden, on the whole, are confident, capable and successful.

4. Contemporary challenges for early childhood education and care

The overwhelming challenge for ECEC in the modern world that is now required is to address the deep divisions, both social and economic, that have emerged in many countries throughout the world during the Age of Modernity and at the same time both to respect and celebrate diversity in a way that children come to understand how they can make a positive contribution to this process. The challenge is both exciting and daunting as it requires enlightened professionals, politicians and parents to engage in a new dialog informed by a fundamental awareness of the deep-seated problems facing humanity. But where to start? There is a very powerful case for ECEC being in the vanguard of educational reform.

First, over the past 30 years there has been several large-scale longitudinal studies which have reported on the long-term effects of 'quality' ECEC [29–32]. The findings of these studies consistently show that young children's experience of high quality ECEC has a long-lasting positive effect on their later opportunities and success both in schooling and in adulthood. Secondly, and more specifically, there are studies that demonstrate the economic benefits of ECEC particularly in terms of productivity and economic efficiency in the workplace [31]. Thirdly, recent developments in neuroscience, particularly in the field of social cognitive neuroscience, provide evidence that socio-emotional competence develops as a function of changes in the dynamic interaction between regulatory processes that lesson such reactions as stress and anxiety [33]. Fourthly, and very important, is the research in the field of health, both mental and physical well-being which shows that ECEC can help to prevent disease and mental instability [34].

It is now abundantly clear that, taken as a whole, this body of research and scholarship makes an immensely strong case for investment and reform in ECEC.

4.1 The challenge to governments

Drawing on the Swedish system of ECEC where there is a common educational experience for children in their pre-school years financed from public funds, the challenge for governments in the developed world is to reform the relationship between the public and private sectors in ECEC provision in countries where such a division exists. One example of a national government currently taking a policy initiative is in Scotland. The Scottish Government and local authorities have committed to making an unprecedented investment in ECEC through near doubling of the funded entitlement from August 2020 for all three- and four-year old children and eligible two-year olds in all ECEC sectors- public, private and voluntary [35].

Scotland has had a devolved administration since 1997 and currently has a minority Nationalist government which ideologically is liberal and centre-left politically. It is very committed to expanding and improving early learning and childcare (referred to as ELC in Scotland) by allocating considerable new resources to the sector.

Since the introduction of free part-time places 20 years ago for all three- and four-year old children subject to parental wishes, virtually all can now access two years of free ELC before the start of primary school at age 5 (see **Table 1** below). The new policy also includes the provision of ELC for 'eligible' two-year old children. The criteria for such eligibility are aimed at those children who experience the greatest disadvantage from their circumstances and includes children from low socio-economic status families receiving State benefits who are often single-parent families with vulnerable children.

From **Table 1** it can be seen that access to ELC in Scotland is very high. The problem, however, is not that places aren't available but that places in the public sector

Type of setting	%
Local Authority nursery school/class	62
Other local authority setting	15
Private and voluntary providers	23

Table 1.

Percentage of children in Scotland aged 5 by 2015 attending an ELC setting by type [32].

are largely part-time (3 hours per day). Private sector provision tends to be open most of the day and throughout the year and is more compatible with the routine of working parents. The problem largely impacts on women either by limiting their scope for a successful career or by downloading stress in the management of their domestic arrangements.

With regard to the specific aspects of the policy [35] the principles and practice focus on the expansion and improvement of ELC services in public, private and voluntary provision. It intends to do this by requiring all providers of ELC services which enter into a contract with the local authority to meet new ELC National Standards (see **Figure 2**) in order for the private and voluntary sectors to access direct government funding for providing an ELC service for 1140 hours per year for each child who is admitted. Included in the 10 National Standards is the requirement for the private and voluntary sectors to provide a common educational experience consistent with the National Curriculum.

To ensure compliance with the above Standards the National Care Inspectorate (NCI) will make unannounced visits to ELC settings and publish reports which will be available in the public domain making them universally accessible. With regard to National Standard 3 in **Figure 2**, new arrangements are currently being developed to instigate joint inspections of all ELC settings between the NCI and Her Majesty's Inspectorate for Education (HMIE). If a specific setting is considered unacceptable on any of the Standards, the NCI can require that the setting address its shortcomings within a given time period and has powers to close the setting altogether in acute circumstances.

1. Staffing, leadership and management (including specific requirements to improve qualifications of staff)
2. Development of children's cognitive skills, health and well-being
3. Physical environment (including access to outdoor play)
4. Evaluation and improvement (with regular reviews and planning)
5. Parent and carer engagement and involvement in the life of the setting (with regular communication and support)]
6. Inclusion (with access to the full range of experiences for all)
7. Business sustainability (private sector)
8. Fair work practice, including payment of the living wage (private sector)
9. Payment process (private sector)
10. Food (including the provision of healthy meals and snacks)

Figure 2.

The list of National Standards for ELC provision in Scotland [35].

The policy of the Scottish Government is a bold attempt to bring the private and public sectors of ECEC provision into close alignment whilst still recognizing the parents should be able to make choices for their children which are not based on their ability to pay expensive fees for high-status institutions in the child-care market. The new policy adopts a 'funding follows the child approach' whereby parents (and carers) can access their child's funding entitlement from any ELC setting in the public, private or voluntary sectors. The criteria for choosing an ECEC setting for one's child will now become wider and based more on the geographic location, the opening hours of the setting and the NCI inspection reports as opposed to family income.

The second major challenge for national and local governments is to instigate a root and branch review of national curriculum guidelines for ECEC with a view that the guidelines be re-structured. To do so, requires governments to outline what they regard as the primary purpose of ECEC. The detailed re-structuring should then be undertaken by representatives of the various stakeholder groups in ECEC.

4.2 The challenge to ECEC settings and ECEC professionals

In the modern world, the thinking associated with post-modernism is gathering momentum [36]. It is crucially relevant for ECEC [13]. At the onset of the Age of Modernity some 250 years ago the dominant intellectual challenge and inspiration at that time was to differentiate between rational/scientific thinking and thinking based on superstition rooted in religious dogma. It is a mode of thinking that has dominated the English-speaking world for over two centuries and still acts as a dominant driver for many people. The world now faces a new challenge, the challenge of post-modernism which requires us to differentiate between the 'self' and the 'social' in our understanding, awareness and behavior. ECEC is heavily implicated in the transition from modernity to postmodernism and carries an immense responsibility.

Central to this responsibility is the requirement to focus children's learning to encompass the two concepts of social justice and social responsibility. Social justice encompasses three main themes: fairness, opportunity and respect and are axiomatic to how the adult world intersects with childhood. The challenge for ECEC settings is to make a public declaration that the principles of social justice are pursued in the setting in which children are encouraged to become aware about fairness, to take up new and challenging opportunities and to respect the views of others [25]. Such a declaration needs to be negotiated with the children's parents as it contains sensitive and potentially threatening challenges to many parents whose mind-sets may be deeply rooted in a particular ideology outlined above. Keeping parents informed about all aspects of the setting is a vital part of effective communication [12], not least to offer advice about ensuring that their child is enthusiastically engaged in the learning process and is aware of the importance of social responsibility.

Throughout 2020 and well into 2021 the lack of social responsibility particularly in many western countries has become a matter of deep concern and deeply shameful. The rapid spread of the deadly virus covid 19 has taken place as a consequence of enormous number of people rejecting the scientific advice aimed at limiting the spread of the virus. Is this a failure of education on a massive scale such that acceptance of constraints on individual freedom in times of crisis has been abandoned? ECEC settings and professionals need to recognize that fundamental rethinking is required. The curriculum needs to be restructured to embrace social justice at the core. In addition, teachers need to become more aware about how the 'hidden

curriculum' impacts on children's subjectivity. The discourse that teachers use, often subconsciously, with children both individually and collectively, plays a significant role in shaping children's social attitudes [37].

A critical issue in this transformation is the professional education of teachers. Initially, the selection of students for access to courses of initial teacher education (ITE) should be revisited such that those admitted be required to display a commitment to social justice. Specific courses in social justice should be included in the curriculum. Furthermore, the organization of ITE courses needs to be re-thought. Without too much upheaval, it should be possible to introduce new arrangements such that all ITE students attend the same classes and courses for at least the first year in order to acquire a common understanding of what it means to be a 'teacher' such as currently happens in Sweden [13].

Another challenge to ECEC professionals is the need for each ECEC centre to develop policies and practices that are inclusive of all children's contemporary diverse characteristics. *These policies are more effective when they are developed in consultation with staff, families, communities and relevant stakeholders so that different perspectives are included* (12). The celebration of diversity should indeed resonate throughout each ECEC centre where staff offer all children guidance and support in developing positive attitudes towards all people [38].

4.3 The challenge to parents

It has become evident in many countries throughout the world that parents now understand the value of ECEC and want access to ECEC services for their young children before they start elementary school. This is a major change in social attitude from that 50 years ago when the education of young children was regarded as the sole responsibility of the family, principally mothers. Yet, under the influence of neoliberalism, many parents are ignoring the long-term benefits of ECEC for their child's psychological and social well-being for the possible short-term advantages which they think will lead to greater economic benefits for their child in the future [23].

However, even though their child may attend an ECEC setting, this does not mean that parents should take 'a back seat'. Parents still have a responsibility to engage with their children in helping them to understand, be knowledgeable, be socially competent and gradually become aware of the wider world. The challenge to parents in supporting their children to be successful is to 'raise your game' through more meaningful engagement both with the child and the ECEC setting. Children learn a great deal about their identity and subjectivity from their parents in the first few years of life. The foundations of their social attitudes are subconsciously transmitted from parent to child through discourse that often contains deeply held values about the world at large [36]. This means that parents need to become more aware of how they interact with their children even at a casual level. All too often many parents with busy lives are content to have their children self-engaged with, for example, an electronic device to play games or watch a video over lengthy periods of time. Such action on the part of parents is a form of abuse of the parent-child relationship and can lead to an addiction which is socially disengaged.

Reading stories with children is another activity that is popular with many parents. However, the choice of stories is critical. Parents should not shy away from choosing stories that contain sensitive issues regarding race, gender, socio-economic status and even same-sex relationships as well as stories that feed children's imagination. Such situations are ideal for helping children to learn how to regulate their socio-emotional learning and for parents to encourage children to reflect on the behavior of others as actors in the stories keeping in mind the principles of social justice and social responsibility.

Social responsibility can also be practiced in the family even when children are young.

Children should be encouraged to participate in domestic routines. Helping to plan and prepare meals and tidy up afterwards as collaborative activities are valuable situations for the effective socialization of children.

Parents can also help their child to establish social networks with other children and show an active interest in their child's social relationships. A key aspect of children's learning about relationships is their awareness of 'others'. Parents have considerable influence in helping children to raise their consciousness concerning how their actions impact on others such that they are able to regulate their actions with friends, family members and strangers especially at the level of micro-social engagement.

5. Conclusion

It is becoming evident to many that the education of children, particularly young children, now faces a daunting challenge. The increasing social and economic divergence in the modern world is staggering and potentially a major threat to our stability and security. But can the key stakeholders in education recognize the challenge and embrace a commitment to adapt policies and practices to address a fundamental re-alignment in the mind-set of children in terms of their social attitudes and social justice? First, it requires an awareness that education is deeply implicated in efforts to bring about greater fairness, more opportunities for young people and respect for others. Teachers have a very considerable responsibility in their day-to-day engagements with children so they need to be persuaded not only that reform in a post-modernist context can be achieved but also that many current social attitudes and injustices must be challenged. Reform is possible, but it needs the understanding, the commitment and the vision in those empowered to instigate it. Second, it needs parents to become more aware about the power they exert over their children and to use that power in a more democratic way to promote social justice. Such is the challenge for the education of children in modern times.

Author details


John Eric Wilkinson^{1,2}

1 University of Glasgow, Glasgow, UK

2 University of Taipei, Taipei, Taiwan

*Address all correspondence to: jericwilkinson@hotmail.com

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Learning through Play - Improving Academic Performance through Play

K. Madhumathi and P. Senthil Selvam

Abstract

The education in the early period provides the cognitive development of the child. Globally world organizations are thriving hard to increase the literacy percentage of the children, as education forms the base for the economic improvement of the country. Depending upon educational skills the individual will be placed in the appropriate job. Education in childhood is focused much on the past few decades. Learning through play is a traditional concept of developing the cognition level. At present, an educational scenario also focuses on Game-based pedagogy for teaching and learning. To some extent, this method will reduce school dropouts in developing countries. The children are more attracted to video games and the learning becomes easy for them. In this digital era, blooming technology is the milestone in the educational sector. The grandma's game is now transforming into the digitalized version. Designing video games by keeping the concepts of traditional games will enhance the learning outcome of the students, especially in early education. Structured, goal-oriented, educational outcome-based video games are necessary to improve the growth and development of the children.

Keywords: Milestones, pedagogy, literacy, spatial language, early education

1. Introduction

The development of the child is the holistic approach which includes physical, mental, social, emotional, behavioral, and cognitive aspects of the development. Delay in any aspect of the development will result in an indirect impact on the future of the child. One of the cornerstones in child development is early education. Most of the countries have laws, government organizations, and movements to uplift the education for all the children irrespective of their disability either mental or physical, economic status, culture, race, gender difference, and status of the parent's job and literacy. "Early childhood refers to the period between birth and 8 years of life. The widely used term early childhood care and education (ECCE) refers to a range of processes and mechanisms that sustain and support development during the early years of life: it encompasses education, physical, social, and emotional care, intellectual stimulation, health care, and nutrition. It also includes the support a family and community need to promote children's healthy development" – UNICEF [1]. In the era of digitalization, the game-based learning approach is the keystone for early childhood education. Digital game-based learning provides fun, increase motivation level, easy to play, self-learn, on spot rewards and scores,

team play, and education-based, so the traditional games are replaced by the digitalized play. Even though there are some disadvantages to video games, with some modifications it can be used as an educational tool for early education.

2. Impact of digitalization on education

Historically the learning started from the traditional play before the emergence of the schooling system. Every country has its own traditional “grandma’s games” which strengthens the physical, social, emotional development of the child and intellectual aspects like problem-solving, logical reasoning, memory, critical thinking, and leadership qualities. Owing to global digitalization, these traditional games are now overlapped by video games. The emergence of electronic gadgets made game-based learning even easier. Despite some drawbacks of video games, it is considered a tool for education outcome-based learning and implemented as the pedagogical method not only in the early period of the child but also in the later college curriculum. A lot of research supports the ideology of improvement in the academic performance of the students with digital game-based learning. “The video games can produce broad enhancements in perceptual, motor, and cognitive skills” [2].

3. Milestones and play

Milestones are the foundation for the growth and development of the child. The delay in milestones will give a clue that there is some problem in the normal development of the child and early intervention is required to overcome this. The gross motor (example – sitting, standing, walking, running) and fine motor (example – buttoning, grasp, release, dressing, combing) development are the basic to the children for further interaction with the environment. These skills are learned through simple play like peek a boo, hide and seek, Tag, and Hopscotch, and finger games either with parents or the peer group. These plays do not have formal rules and regulations are mostly termed as “Grandma’s Games”. So, child development starts with play that is often unnoticed.

4. Cognition and play

The cognitive level of the child is measured by the IQ test and graded according to the scores obtained. It determines the participation level, the implication of winning strategies, and the sportsmanship of the child. On the other side, playing itself will induce improvement in the cognition quotient like problem-solving, creative thinking, memory, logical reasoning. Concerning video games like puzzles and maze, logical thinking and problem-solving skills are necessary. Digitalized Puzzles and maze games provide real-time navigation, increases the intrinsic motivational level, put forward possible ways to find the way in the maze, and yield visual treat. Visuospatial cognition plays a notable factor in playing games especially games focused on academic and educational outcomes.

5. Spatial language and play

Spatial language, in\out, up\down, top\bottom, inside\outside, small\big, near\far, on, in front\behind, right\left, middle\corner, understanding of this spatial

concept is the fundamental principle while we play a game. Without understanding this concept, the child cannot play. In the early period of growth and development, the child usually identifies the objects by relating to other objects and their environment. Through the concept of spatial relations, the child plays and learns the primary arithmetic skills. In the early period of human evolution, the stone age people learned through symbols, patterns, identification marks, numerical lines. This historic concept of spatial knowledge is incorporated in the stimulated digital video games like identifying patterns, matching shapes, finding a way to home, shopping in a mall, paying the bill, parking the car. The spatial abilities are related to academic performance in later life of the children [3].

6. Spatial skills and academics

Spatial skills blended video games are said to improve the spatial ability or even playing the video game itself will enhance the spatial skills. This conceptualization is reinforced by findings of the researchers that “Spatial skills and cognitive skills are the benefits of video game practice a spatial task has three spatial skills. Spatial perception, mental rotation, and spatial visualization. “spatial perception is the ability to infer the orientation of an object to one’s orientation. Mental rotation is the ability to imagine the rotation of a visual stimulus. Spatial visualization is the most difficult ability to describe precisely” [4]. Since video games are boosting the cognitive level, it can be used as the pedagogical method for early childhood education.

7. Video game as pedagogical method of teaching and learning

“A game which we play thanks to an audiovisual apparatus and which can be based on a story” is called a video game [5]. With the advancement in digitalization and electronic gadgets, the use of video games has reached tremendous heights in recent years. The smartphone like iPhone, iPads, Android phones, usage of multimedia is now seen in the educational sectors for easy teaching and learning method. The primary school children are listening to rhymes, narrative stories, analogy method of teaching. The play integrated method has changed the educational outcome of the small children to the next level. Since stimulated video games mimic everyday activities, it provokes a good understanding of the day-to-day participation of the child socially and emotionally. Playing digitalized games like a maze, puzzle, mental rotation, building blocks, matching shapes, identifying objects and spatial language will improve the spatial knowledge of the children and their academic performance.

8. Digitalized spatial games and their effects on cognition

Maze – a game in which the player must find a way or path to reach the stipulated place or point. Within the given maze many pathways are present but only one correct path will reach the destination point. Playing maze in the early period of life, the child develops logical thinking and problem- solving skills. The child must apply the spatial knowledge to explore the way by ruling out the incorrect path. To solve the maze, the child requires a combination of cognitive processes which includes attention, visuospatial, visuo-constructional, and executive function [6]. The difficulty of the maze is increased by adding more wrong shorter or longer

tracks, by displaying multiple different correct start and endpoints within the same maze, and by providing stipulated time to finish the game. The game can be structured in a way to provide hints whenever necessary and a reward & point system at the winning time. The digital game delivers pleasant visual feedback of the real movement of the object in the way. This will intensify the inner motivational level of the child to play.

Puzzle – a game or toy, where the player needs to logically arrange the broken pieces or numbers or words or objects to solve it. The logical arrangement of the broken pieces is termed as the jigsaw puzzle and it is seen as early educational toys in most of the pre-primary school (kinder garden). The sequential position of the fragmented section of the object needs proper visualization, rotation of the bits & pieces mentally, and spatial relation. The increase in the number of broken and smaller pieces will raise the complexity of the game. No structured templates are needed to design a jigsaw puzzle, just to break the full picture into different pieces and join again to solve it. Since it is easy to make, it can be designed by anyone like parents or teachers in the school. The puzzle game can be given to the child with or without the reference image to solve it. Everyday images like fruits, vegetables, animals, birds, good habits, grooming activities, objects seen in the living room, kitchen, bedroom, study room, classroom, vehicles, can be used in the design. It will further boost up the cognitive level of the child and helps in the academic outcomes. “The nature and duration of this type of games are typically equivalent to another type of learning task for the classroom and field trip activities [7].

Mental rotation – has “five sequential cognitive-processing stages, perceptual coding of the stimulus, identification of the stimulus and orientation, mental rotation of the stimulus, a judgment of parity, and response and execution”. It needs eye movement, maintaining gaze, eye tracking, and fixing the visual information [8]. The mental rotation task has one original image on one side and two or more images on the other side. The original image is the reference image to find out the exact image on the other side which is rotated. The child must rotate the image mentally to match it with the original/reference image. Basic pictures like alphabets, cars, geometrical shapes can be used in designing mental rotation. The player first needs to analyze the characteristics of the original image, even to note the small details in it. Second, they must spatially relate all the details of the original image to images present on the other side. Third, visual tracking of both images must be done to fix the correct image. With specific to the mental rotation, almost all the images look alike. The complexity of the mental rotation is done by increasing the details of the original image or by adding the mirror images. When this game is played digitally, the complexity will be decreased as it gives more visual clues.

Building blocks: Block games can be played as a free game or a structured game. In a free game, the child can arrange the block with his or her imagination, but in structured play, the kid must build the block with some reference pictures like house, car, vehicles, fruits, vegetables, stationaries, etc. The use of day-to-day objects handled by the kids will attract them to play and thereby the learning process can be made easier. With the same given blocks, multiple images can be built and it depends upon the cognitive level of the child. The block game needs mental rotation, spatial relation, spatial perception, and visualization of the images. The numerical skill of the child can be improved by playing the block game since it increases the spatial ability of the children. Besides, learning to build with blocks, the child learns “the concept of balance, mathematics, constructional and problem-solving skills [9].

Shapes – there is a strong connection between the basic shapes and normal things we use in daily activities. For instance, books are rectangular shape, ball

– spherical, egg and vegetables like mango are oval, fruits like orange, berries, grapes are circle, grooming clothes like towels are either in rectangle or square. So, even before the schooling starts for the kids, the shapes are incorporated in their daily living in the above-mentioned form. The knowledge of shapes is also important in the later development of the mathematical skills of the children. Digital game of Matching shapes needs identification of the shape and tracking the same shapes which are present elsewhere on the screen. The cognitive process involved in this game is visualization, identification, eye tracking, and fixing the shapes.

9. Play and its uses

Attention – Attention “is a complex cognitive function involving different processes like selectively attending to specific stimuli, focusing for prolonged periods, or regulating and monitoring actions [10]. The teacher should focus on selective attention to visual, auditory stimuli, duration of the class, and get feedback from the students. This is made easy using play during the class. The play can either be formal or informal, structured, or unstructured mode. Also, the video version of the game provides excellent visual treat, limited time duration, and feedback during the task. So, the attention level of the children can be maintained throughout the play session.

Interest – Interest refers to “relations between individuals and objects, domains, events, or topics that are personally meaningful” [11]. The video game grabs the interest of the children for an extended period. The learning process is made easy by increasing the attention span of the children.

Motivation – Academic motivation refers to “a wide range of traits, such as individual’s relevant beliefs, perceptions, values, interests, enjoyment, and attitudes [12]. For academic and school achievements the kids need a high motivational level to learn. Research says the motivational level of the students can be elevated through playing games. The games provide visual and auditory treats throughout the play session.

Team play – one of the important skills in the development period of the child is working with the peer group. In pretend play and role-play the mutual understanding between the team is needed. This type of play needs some rules and regulations to understand and to follow accordingly. It can be included by the teacher while educating the kids about moral values. According to Vygotsky, “the most efficient learning occurs in a social context” [13].

Flexibility – Cognitive flexibility is “a cognitive system that underpins the ability to change perspective, shift attention between tasks or mental sets, and adjust to changing demand and problems” [13]. The play improves cognitive flexibility, which is one of the foundations in later adult life.

Easy to learn – most of the games do not have a hard rule to follow. This basic character makes the children involve in play without extrinsic motivation. The academic pressure of learning is reduced in game-based pedagogy and teachers are happy to implement this type of teaching method in early education.

Interactive – “learn by doing”, the children have interactive learning when they play either virtually or with the peer groups. The interaction between two or more people will improve the cognitive aspects of logical thinking and problem solving and works as a bridge in teamwork.

Repetition – it allows the children to redo the task again till they master it. The failure boredom is reduced, and joyful moment of victory is increased. “practice make a man perfect”. It will redefine the skills and the students will start to explore the environment both physically and mentally.

An integrated approach – the learning is effortless if it is an integrated approach. By this approach, the children inter-relates the concepts of simple to complex, easy to hard, and thereby reforms the learning process.

A real challenge – the textbook method of learning is usually dull, so the children lack the motivation to learn. In the play, the child faces real challenges and find the answers to finish the task. This exposure to real challenges is necessary for the child to become strong socially and emotionally in their later period of life.

Learn to practice \practice to learn – learning is the first step, followed by practice. Through practice, the learned concept can be mastered as skills. This skill set is the base for upcoming years to the child. The early the child, masters the task, the stronger the memory will be.

“Practically all children play computer games at one time or another, and this may affect their behavior”. The research findings say that play will modify the processing of spatial attention. Games like driving, maze, puzzle, role-playing, strategy games, adventure, affects spatial cognition. The child has higher arousal and motivation when they play their favorite game [14].

10. Video game for the special population in early education

The differently-abled children are using digital games therapeutically and for academic learning with some modifications like appropriate instructions, level, hints, feedback, rewards, scoreboard, uncluttered screen design, visual and verbal rewards, minimal motor skills. The “virtual environment-based spatial training, in which students navigated mazes or manipulated objects, led to an improvement in executive function and verbal regulation of spatial functioning for students with motor disabilities”. The intellectually disabled people have increased attention after playing computer games. The disabled students are benefited from video games specific to the workforce in the later period. The games which are not technically designed for disabled children are also meant to have some benefits and academic outcomes [15]. The video games designed according to the school curriculum was effective in promoting learning among the students [16].

11. Conclusion

The increased academic pressure leads to more dropouts in early education. “In human children, play usually enhances curiosity, which facilitates memory and learning” [17]. Preschoolers were very anxious in the school as they are provided with toys. The following are the elements that should be considered while choosing a video game for education purpose, (adapted from Funk), Educational or therapeutic objective, type of game, required level and nature of involvement, information and rules, the role of luck, difficulty, competition, duration, participation age and characteristics, number of players, facilitator’s role, and settings [18]. Keeping all these points and implementing the learning through play in the early period of education will yield fruitful result in adult life.

Conflict of interest

“The authors declare no conflict of interest.”

Author details

K. Madhumathi* and P. Senthil Selvam
School of Physiotherapy, Vels Institute of Science Technology and Advanced
Studies, Chennai, Tamilnadu, India

*Address all correspondence to: madhu.sp@velsuniv.ac.in

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Enhancing Self-Regulation and Metacognition in Online Learning

Adriana Carolina Torres Escobar

Abstract

Nowadays, online education is in the limelight. During the COVID-19 pandemic, K-12 students endured an abrupt transition from everyday learning in classrooms to online education. In the process, the concept that learning only occurs if students are physically present in a classroom has changed drastically. As the spaces and interactions are different, teachers need formal training, flexibility, and willingness to provide efficient online education that adjusts to the new and fluctuating realities. Simultaneously, students need to enhance self-regulation and metacognition and be the leaders of their education process and results. It is pivotal that teachers keep in mind that close relationships with students and families and personalized support are critically important to fostering ties, developing knowledge, and preventing school dropout. Consequently, curricula must respond to students' singularities, socioeconomic conditions, contexts, resources, and interests. This chapter advocates that teachers should support students to work on the development of self-regulation, metacognition, collaborative technology-mediated tasks, and problem-solving in online environments. These are tools that help students to be autonomous, engage with their learning process, learn, create knowledge, decide accurately, improve their creativity, and increase intrinsic motivation skills.

Keywords: collaborative learning, metacognition, online learning, self-regulation, teachers' role

1. Introduction

At the height of the COVID-19 lockdown in 2020, more than 160 countries mandated school closures and alternative learning forms, mainly through online education, for at least 1.5 billion children and youth [1]. The rise in online learning experiences has significantly changed the landscape of instruction. They entail other pedagogical approaches than traditional learning experiences. K-12 students are not physically present in school during online learning processes; then, as they have not been trained for this situation, interactions with peers and teachers are complex.

The startling education problems that the school system is enduring now in some parts of the world are not the direct consequence of school closure and online learning. Even before the pandemic, there had been concerns about school-dropout problems, the low graduation rate of K-12 students, low equity and quality in K-12 Schools, and the impact of poverty on the students' performance in school [2–7]. Undeniably, schools need to improve their overall structure, approaches to education and children, parental-school communication, and teaching strategies. The

current emergency time should be harnessed to make significant changes for the students' academic, social, and personal success.

Due to the sanitary crisis, K-12 students worldwide have not been in-person in school for a prolonged period. This situation has made significant impacts on students' accomplishments, and the dropout rates have increased. Discouragingly, millions of K-12 students have dropped out of school due to the digital divide, the inadequate preparation of teachers to give online classes, and the emotional and economic challenges they have faced during the pandemic. Literature suggests that dropping out may lead to a plethora of detrimental outcomes such as child marriages, crime, domestic violence, early pregnancies, little probability to re-enroll in study programs, fewer opportunities for growing financially over the long term, social costs for the countries, and risk of incarceration [8–10]. Learners under economic, academic, or emotional duress may consider being self-directed a complicated task. Nevertheless, the school system should use online instruction for the benefit of the students. Online learning should not be a hindrance for learners and the cause of dropping out. In fact, it is a way of providing high-quality education to the students and reaching out to them more efficiently, enabling teacher-to-student and student-to-student interaction and assisting students in learning at their own pace with the help of their teachers, peers, and parents. Additionally, teachers can propose multiple activities such as interactions in forums, chat groups, video presentations, games, meetings, and document sharing. Governments should ensure to implement training courses to teachers and students about online learning and provide technical tools and Wi-Fi connectivity if they need them. Teachers should be willing to develop online teaching expertise because students have the right to access well-qualified teachers who respond favorably and flexibly to the changes that the current liquid society demands. Indeed, teachers should be able to create dynamic and exciting learning environments to strengthen their students' learning.

Schools should use online education wisely, promote practical knowledge output, motivate students to keep learning at any time and increase their longing and creativity to positively contribute to society. K-12 students all around the world need to have access to online education opportunities to ensure their right to education under any circumstance, especially in uncertain times. Teachers should design content and tasks that students enjoy and, at the same time, satisfy their academic and social needs. Online lessons, activities, and spaces should encourage students to learn, communicate, analyze other points of view and share their ideas confidently. In warranting achievement and motivation, it is required that teachers consider using digital tools with pedagogical strategies to yield learning opportunities for every student. In addition, teachers must engage with the learners and make pedagogical decisions in a spirit of respect, collaboration, and community.

Technology grants a wide range of teaching opportunities and resources. Consequently, teachers and students should learn how to use them to hold effective practices. Teachers are responsible for using their academic and empirical knowledge to devise a well-developed and methodologically comprehensive, rigorous, and inclusive curriculum that considers students' diversity. That way, both teachers and students can leverage the opportunities that technology and its environments provide to enhance learning about complex and demanding topics.

K-12 students defectively endowed with autonomous and responsible learning tend to stop studying, and get unmotivated quickly, mostly when they endure tough times. Unexpectedly and without having planned to provide online education, most schools have moved to remote learning to contain the spread of COVID-19. Furthermore, independently of the sanitary emergency, online education must inevitably be integrated into curricula at all levels. Teachers should prepare to be

experts in developing appealing, interactive, and goal-oriented lessons for online classes. The chapter's objectives are 1. to formulate strategies to make online learning successful, and 2. to explain how to use self-regulation and metacognition to excel students' online education process.

The study presents critical information to successfully undertake online education, focusing on the teachers', governments', students', and families' role. Definitely, online learning should be seen neither as a deficit model nor as a panacea. Its success or failure depends on how it is planned and structured. This chapter contributes to knowledge because it defends that online education can be used as an opportunity for the students' growth. There are social problems that should be solved, and suggestions are given. Remote learning should be used to guide students to be at the helm of their own education; increase their intrinsic motivation; develop their metacognitive, practical, collaborative, and social skills; choose accurately according to the situations; take initiatives; be organized; take risks through analysis; react to the unexpected; contrast; take responsibility; and be strategic to innovate. These elements are required tools to thrive in the 21st century.

2. Helping K-12 students to be motivated and self-regulated

2.1 Preventing dropout

Online education is altering the paradigm of physical schools. It can be shocking or appealing for some high-school students. Having access to devices and the Internet, and experience with blended or online instruction, are factors that help students to have a successful experience in online learning. Besides, their success also depends on their socioeconomic, emotional, and personal factors. Teachers should notice when students suddenly change their attitude or performance declines, do not attend online classes, or do not do the homework in the online environment. Those may be signs of demotivation, affective disruption, or difficult access to technology and connectivity. It is of paramount importance that teachers support them using alternative teaching methods, instructional materials, and practical tasks for their particular situation. Teachers must determine the root causes of students' low performance and apathetic attitude, and offer personalized support. Some signals of at-risk of dropping out K-12 students are:

- Behaving disrespectfully.
- Not attending virtual conferences.
- Not participating in the classes' discussions.
- Not presenting homework.
- Not responding to academic forums, blogs and chats.
- Not revising learning materials (documents, links, notes).
- Not taking online tests.
- Not turning in assignments.
- Parents not attending neither calls nor e-mails.

- Using inappropriate language.

Educators should strengthen bonds with students so that they do not dropout. They should congratulate them when they meet their goals, explain with various examples, reinforce content that has not been clear, give online or telephonic personalized advice, and interact with students and parents. Without neglecting students at low-risk, they should be aware of vulnerable students at the same time. Teachers should not make conclusions and predictions before knowing them. They should not stigmatize them, make generalizations, or treat them as incapable people with fewer abilities to be in the school system. The purpose of characterizing the students is to assist them and prevent dropouts. Hence, it is essential to find time for them to dive into their interest areas. Teachers should listen to their interests and, with their guidance, give them the freedom to explore topics that are alluring for them and share their expertise in issues that would enrich their classmates.

Teachers should establish consistent one-on-one contact with students and families. Families' involvement is central in the academic achievement of children, as well as their attitude, behavior, and social adjustment. Parental involvement is vital because students feel that their education is relevant. The parents are knowledgeable partners that, to the extent possible, can facilitate moral and material resources and spaces that students need, can assist with their homework, and discuss with the teachers their children's academic, emotional and social strengths and weaknesses to support them. That way, teachers and school administrators understand their students better and raise their chance to make reforms and adjustments that fit them.

Teachers should make their students know that they care for their welfare as human beings and that they are always welcomed in the online learning platforms; that way, they would not feel alone in their online work. Learners need to perceive that they have the teachers' support. In online education, teachers should be more flexible in time and resources. It is recommended that they open communication lines, be available for the learners, be willing to listen to their academic and emotional concerns, give advice, and let students know they matter and are missed. Straightforward actions such as sending personalized texts, e-mails, or personal calls help students feel appreciated. They also get to see that they count on their attention.

In a respectful way in which K-12 students feel comfortable and confident, teachers should ask them about their feelings about online learning, their experiences their interests, their family adjustment, their economic situation, their responsibilities at home, the positive and negative elements that they have found out in online learning. Analyzing this information, teachers can provide personalized instructional support to students to reinforce topics and structure assignments to address their challenges. They can advise students and talk to their families about their situations and the strategies that they should use to the betterment of the students' academic online experience, as well as suggest them to have an appointment with the school counselor so that they receive specialized psychological support. Finally, as many K-12 students rely on schools to fulfill their nutritional requirements, teachers should offer information about the school meal distribution points and the community groups that provide social service.

2.2 Strategies to self-regulate and concentrate

Self-regulation is a process that involves learners in their cognitive function and makes them think about how they learn. This is an active and constructive process in which the main actors are the students. It is imperative to train students in this

area because societies need autonomous, proactive, and innovative people who can respond resiliently to crises or prosperous situations since the future is unforeseeable. Self-regulated students tend to thrive academically and are more optimistic about their future. They are always advancing and acquiring new skills, are goal-directed, can develop the power to teach themselves, evaluate their work through reflection, establish realistic and ambitious goals, and attain them.

Teachers must help students recognize what it means to learn online in contrast to learning in a classroom. In online classes, teachers should explicitly support students and teach self-regulatory practices. For instance, teachers should ask learners about the strategies they used in traditional settings to contrast the changes they should make during their online experience that better fit their realities and contexts.

Furthermore, teachers should make their students reflect on their expectations, advantages, and drawbacks during online education. Teachers should open spaces for students to generate questions and explain to their peers the online and personal sources that have been helpful for them, which, at the same time, might be useful for their classmates.

With the aim of doing effective planning, students and teachers should work together to set clear and concise expectations for learning. These expectations might be about contents, materials, time, or behavior. When teachers and learners make agreements, both have enough information to self-assess their rhythm, decisions, and process as they perform.

Teachers should support K-12 students for appropriate pacing because, for some students, the days might blend into one another, or they may stay online for long periods, either studying or wandering over to social networks, games, and videos. To help students concentrate, teachers should propose meditation, cognitive activities, and physical exercise. For example, teachers should intentionally incorporate movement, meditation, and deep breathing into online classes. Indeed, students should alternate intensive periods of focus with deliberately planned phases of rest and self-reward. These strategies have enormous benefits to cognitive functioning and wellbeing, especially on days of anxiety, boredom, uncertainty, or sedentariness.

Additionally, teachers should encourage reading for pleasure and socialization of texts in class. In order to promote family time and emotional support, teachers should assign tasks that involve spending time with the family and relate these activities to the contents of the class. Some activities are: preparing and eating meals together, playing games, running, making videos together, and helping with household chores.

Teachers should propose times when students distinguish their achievements and problems during online learning and offer solutions to solve emotional tautness. In online classes, teachers should discuss with the students about their learning environment at home. Sometimes it is noisy, some families live in small spaces, and there are several distractions for students. Nonetheless, teachers should teach students that they have to be innovative and resilient. With the teachers' help, the students should reflect on designing their ideal learning and working environments. They should talk with their families and look for times and spaces where they are distraction-free for a set amount of time or until a particular task is accomplished. Teachers should convene meetings with parents to explain and make them aware that students need to give exclusive attention to academic tasks that require serious concentration. This advice intends to teach students to create schedules, fulfill them, meet consensus with their families, determine spaces, resources, and times to boost their learning. This situation is an opportunity for students to learn that life is not always smooth, and they have to be active in solving problems.

2.3 Promoting active learning in online classes

Teachers should train students to set clear expectations and stick to them. K-12 students should establish their goals because they engage with themselves, and they feel ownership over those goals. That way, they develop intense eagerness to pursue them even when they have to endure setbacks, distractions, tensions, and challenges. Are the students merely establishing goals based solely on the teachers' impositions but not on their passions, needs, and realities? In online learning, teachers should not try to dominate students' decisions but teach them to decide wisely. Through remote education, students face more autonomous learning, and they are physically distant. Teachers should harness it to teach students that they have the power to decide, surpass others' expectations, and be the owners of their learning process to excel. That way, they learn to be high-achieving students.

Teachers should follow up their students' quest in their struggle to meet their goals, asking how they are doing their process, their feelings, their academic achievement: have they discovered a new concept? Have they used their knowledge in their everyday life? Have they written reflections, essays, notes, or a diary? Teachers should advise K-12 students, encourage their progress, and remind them to keep progressing and to be aware that success is not a straight-line relation over time. For instance, they can also share videos and articles about the stories of people who overcame adversity through study, discipline, and hard work, even in the worst circumstances, and have used their achievements to help others and make social, technological, academic, and scientific transformations.

Teachers should guide students to discover their strengths, cultivate determination, and self-efficacy to accomplish objectives that are even more complex than those pre-established in the education system. That way, students go deeper into the contents and research topics that inspire them. When they do it, they persevere, keep learning, inquire, and propose. This exercise requires time and a lengthy training process. Teachers can start helping students setting goals related to their academic performance, such as the daily or weekly amount of time they will commit to studying or forming a study group with their peers to interact online, by platforms, or social networks. When students gain experience doing so, they get more curious and open to knowledge, and they can work together with their teachers to plan content-related goals to develop and discuss in class. Using this method, they are more confident to communicate, agree, disagree, make proposals, and explain the topics they would like to learn about and the activities they would like to try. It is important to underline that the students are the center of the education process, and they live in different circumstances, and not all students have the same resources. At all times, students should be able to express their opinion about their learning process, assessment, and preferences. Consequently, teachers must:

- Ask students' opinions about how they would like to run the classes and be assessed.
- Be attentive to paralinguistic – intonation, tone, volume- and non-linguistic communication- facial expressions.
- Be open to learning about students.
- Carefully listen to students.
- Give feedback about students' comments, do not interrupt them, and take the time to listen.

- Show that learners' thoughts matter to them. Teachers should not make students feel that they listen to them just because of a formality.
- Consider students' suggestions for enriching the teaching practice and the curriculum.
- Give up prejudices about the students.
- Show the students that they care about their opinion, ask questions to clarify, go more in-depth, and let students share their insights.
- Summarize the students' thoughts to clarify understanding and raise reflection.
- Use gestures to show that they are paying active attention to the students.
- Discuss the comments showing agreement or disagreement. For that means, both teachers and students should use arguments and make explanations.
- Motivate students to participate in the curriculum planning process and take their ideas into account.

Undoubtedly, when students make role-plays and simulate to be teachers, they increase their independence, creativity, and self-confidence. They reinforce their knowledge, understand better, lead, answer questions, give examples, are dynamic, express clearly, learn cooperatively, sharpen their skills, and make more detailed revisions about the material.

Sometimes K-12 students are overconfident and think that they have mastery on the topics, but it is not the reality. For this reason, it is interesting that they explain the topics to their peers. It promotes active learning, and the focus is on them, not only on the teacher. This involves students in the course content; they set new personal and social goals, and become active students. Definitely, peer teaching boosts students' engagement, knowledge, social skills, and participation.

2.4 Teachers' role

Teachers should be proactive and productive. It has to be in all spaces: in the classroom or in online asynchronous, synchronous, or blended classes. Teachers should not be mere technicians and followers of instructions. They should make proposals, accomplish their goals, and build their education vision to benefit their students. The interconnected world and the easiness of interacting online should be used to network with other teachers, researchers, and experts in multiple fields. It means that they take responsibility for their profession, are leaders, give a positive example through actions, are committed to excel their teaching strategies, are flexible, do not resist technology, reinvent education when it is necessary, and give more than they are officially required because they genuinely have the calling to contribute to their students and society.

Teachers are mediators who introduce ideas and inspire K-12 students to explore new ways of thinking on their own. In order to know what language and strategies they should use to motivate students, they should promote interactions with each group, set up video conferences with parents and students in small groups or individually, and know their experiences, thoughts, feelings, needs, strengths, socio-economic conditions, and culture. By exploring each student's situation, they should

create and apply strategies that respond to the students' realities, promote equity, motivation, and quality of education. Effective teachers dedicate themselves to students' success and choose learning methods that accommodate all of them without making exclusions or losing students.

One of the core problems in education is that teaching is impersonal, and students are seen as "masses" who should access the same education without matter their lives and circumstances. Equity in education should be exalted. Each student should be recognized as a unique human being, and teachers should ensure students' inclusion. They have to reach the same level of skills according to their age and level of education. Still, at the same time, teachers should differentiate instruction, tasks, and resources to respond effectively to particular situations, adequate the activities for their learning styles and types of intelligence, and make each student develop their potential.

Mediocrity should be avoided, and teachers should go more in-depth and help students bolster their abilities, and eliminate stereotypes. Equity in education does not conceive gender, ethnic origin, and family background as obstacles to academic success. It looks for providing every student access to meaningful learning that drives their talents and empowers them to build their authentic points of view. Teachers should make sure that students feel valued, that their voice is significant. Regardless of their culture, gender, or socioeconomic status, they have to be active to improve their intellectual skills, discover themselves and others, value their classmates, listen to others, treat other people with dignity, and become ethical and responsible human beings and citizens.

Teachers should narrow the digital divide and make online learning accessible and equitable. Furthermore, they should conduct a needs analysis to find out the students' technical capabilities. It is imperative to notice that each school is a universe, and each student endures different realities. Before proposing tasks, teachers should consider the technological contexts of the participants. They have to evaluate if students have a stable and fast Internet connection for watching videos, videoconferencing, and playing. In fact, low Internet connection or difficult access to technological devices might cause fatigue in students. Teachers should not overwhelm students with excessive demands because it is detrimental to learners' motivation and achievement.

Teachers should be wise to determine the right amount of content and technology required for their online classes. They should have realistic expectations about the working load that students can stand, the chance of synchronous and asynchronous connection, and the quality of feedback that students will receive. Some students can interact better in synchronous work. Others prefer to write, take the time to reflect and read. The students that do not have a fast Internet connection interact better through asynchronous tools. Teachers can support students with videos that automatically pop up, share helpful sites, such as glossaries, or question engines.

2.5 Online tasks

Teachers should ensure that online classes are dynamic and engaging without sacrificing academic quality. The tasks should focus on the students and their learning process, be clear to their language level be goal-oriented and communicative, and promote reflection.

For instance, to make discussions and debates and make the students give their opinion using critical thinking skills including interpretation, analysis, inquiries, reflections, inference, and an open listening to the replies and questions of their audience, teachers should leverage multimedia input resources that K-12 students like such as YouTube videos, Netflix documentaries, newscasts, and podcasts; as

well as reading materials such as journalistic texts, essays, opinions, and blogs. Exciting material and sources used academically with the teachers' support are means that students can use to engage in research, communication, and problem-solving. Teachers should take advantage of these resources to enable group interaction, a decisive element of effective online learning. The assignments should prompt students to practice the classes' contents in other contexts and platforms.

Teachers should use games to promote learning. They provide learning opportunities not so explored in the typical classroom where some teachers only use books, whiteboards, and paper. High-quality educational computer games can immerse and engage students in a 'microworld,' an environment artificially constructed to embody ideas and skills and offer potent tools to further the theoretical contents. By making connections with different types of objects, information, images, and concepts, and receiving immediate feedback, learners can develop a deep and practical understanding.

Teachers should involve K-12 students in social problems with the aim to make that they know the world's situations and synthesize information into real-world knowledge. Expose students to current local and international affairs is more meaningful, representative, and realistic than the tasks found in more traditional textbooks. When students solve problems, their learning is active, contextualized, and practical, going far beyond the sole reproduction of disciplinary content. Indeed, in online education, teachers should rescue problem-solving, autonomy, and collaborative research. Contents should be approached transdisciplinary, making learning interesting and articulated. Teachers should help students focus on using knowledge to innovate, create new connections and proposals, and give solutions to problems in their context. When individuals develop the problem-solving ability, they respond to rapid changes through various alternatives, predict outcomes, maximize positive results, view problems as opportunities to grow, and create appropriate solutions.

2.6 The importance of self-regulation and collaborative learning

Autonomy, discipline, and enthusiasm towards knowledge are components that lead to academic success. Research on learning engagement consistently identifies engagement as fundamental for course completion and academic success. Students get discouraged in online learning when teachers include excessive amounts of homework, the tasks are too easy or too demanding, the feeling of isolation increases, and content does not meet the students' expectations. Teachers should create plans to boost students' self-regulation. When students empower in their learning process, they engage in self-motivating cycles of learning. The outcome is emotional, social, and academic attainment. Teachers should leverage online knowledge to introduce and foster the development of higher-order thinking skills and effective study strategies.

Teachers should not replicate the techniques they use in the classroom into online learning because the learning environments are different. They should take into account Bloom's taxonomy. Instead of focusing on enhancing inferior levels: factual knowledge, conceptual knowledge, and procedural knowledge, they should encourage metacognitive knowledge. Nowadays, teachers have to be proactive and creative to monitor student learning, metacognition, motivation, and online perceptions over time. Teachers who make positive differences in students exploit this knowledge to optimize their instruction. In fact, monitoring student learning is a foundational component of high-quality education and is a valuable basis to make pedagogical decisions.

Effective teachers who use a student-centered approach are likely to design lessons that meet each learner's needs. In online learning, teachers should place the

focus on the students. Teachers need to reach out and provide them with learning experiences that foster positive feelings about their progress, specific goals, self-image, and abilities.

When teachers propose collaborative technology-mediated activities, students develop positive perceptions of working in teams, and they have more opportunities for developing engagement with their peers and their learning process. Collaborative tasks are crucial components for online learning because they boost understanding, nurture relationships, foster self-esteem, lessen anxiety, stimulate critical thinking, and build a sense of community. Through collaborative learning, teachers can design teams to address learning needs, encourage students to help and support each other, ask questions, and share knowledge, learning strategies, and anecdotes related to their educational path. Collaborative activities promote unity in the diversity, exchange, richness of information, thoroughgoing engagement levels, and individual and group accountability. Collaborative learning is a consistently positive stimulus on self-esteem and human relations.

Self-regulation is how learners have the initiative to activate, alter, and sustain their learning practices according to the contents that they are exposed to, the contexts, and the circumstances. Metacognition is the knowledge that individuals have about their cognition. Teachers should teach students to develop metacognition because they become effective and active learners. They can discover and enrich their strategies, identify their strengths and insecurities, assess task goals, establish the requirements they need to reach goals, evaluate themselves, reflect on tasks, be strategic, and be flexible enough to adjust to new strategies when necessary. Self-regulation and metacognition are exceptional pillars that help students be resilient, plan, monitor, evaluate their decisions and performance, and improve their self-management and self-appraisal skills. The outcome is positive because these strategies empower their higher-order cognitive abilities, concentration, self-confidence, and meaningful learning. These skills can evolve and be useful in the present and future times.

Learning is a constructivist and interactive process, and learners should be active participants who monitor and control their motivation, behavior, and cognition. When students develop self-regulation, they have the power to motivate themselves to accomplish self-set goals and to not give up. They are creative, and they know their learning processes so clearly that they are capable of planning, establishing organizational techniques. That way, they monitor themselves and are flexible enough to change their procedures and include new strategies to make their learning process as smooth as possible. The result is that their academic performance is reliable, and they develop an eagerness for learning, making it a lifelong habit. It is paramount for students to understand that failure is an opportunity to progress and learn new strategies, develop creativity, persistence, endurance, and resilience to advance on the exciting and diverse path to success.

Instructors should guide K-12 students to set goals, monitor their progress, and make adjustments in order to be successful. For this reason, teachers should expose students to different social experiences and teaching activities that embolden them to self-monitor and control their performance. Teachers should propose tasks that require that students are autonomous and responsible for their learning process, make them face unexpected situations in which it is decisive for them to select, build, and transfer knowledge.

In online discussions or through short written-questions during and after the classes, teachers should ask students to summarize their own words and the knowledge they have attained in the session. Teachers make the learning process visible when they ask their students to explain their answers, defend their points of view, give solutions, and help their peers.

Before each task, teachers should ask K-12 students to plan goals, establish strategies to monitor their progress, self-assess, make brainstorm and express expectations about what they want to learn. Teachers should remember that students are not blank slates that need to be filled with information and modeling. When students plan out how they will tackle complex tasks, they become aware of procedures that are effective for them. It generates better learning and understanding.

Teachers should encourage students to “think about their thinking” while they are learning, interacting, and practicing. The questions are indispensable students’ resources. Learning through inquiry is beneficial because it increases the students’ interest and motivation. Students should tailor their learning process to fill particular gaps, be self-reflexive, identify if they are on the right track, and determine different approaches that better fit their pathway. For this reason, teachers should not pressure students to learn fast. Online learning gives the possibility of having self-paced learning and deepening moments, yet still interactive; remote education promotes student-centered learning. In many cases, students have the freedom of revising recorded lectures, have access to slideshows, listen to concepts that were not clear immediately in the synchronous part of the class, listen to recordings, and read documents, articles, messages, and PDFs.

Teachers should make their students know that it is not enough to find the right answers or memorize concepts and facts. It is of paramount importance that students discover how they are learning, why they chose an answer, what the evidence is, what they really know about the topics, what is remarkable and exciting for them, what they can use in everyday life, what their doubts are, how to use data and translate them into information and new knowledge.

Teachers should create spaces such as blogs, forums, and online discussions in which students share their learning processes, ask questions to their peers, express their strengths, weaknesses, and challenges. They can also talk about their level of confidence in the topics, what they would like to learn, how they have felt, what they have liked, and what they have disliked during the process of researching, inquiring, and learning.

2.7 Online assessment and exam wrappers

Students improve learning when teachers ask them to use metacognitive skills explicitly. Teachers should ask them to give details about their learning to engage them in comprehension monitoring activities. In assessment, teachers should use exam wrappers because the exams’ importance goes beyond the results and grades. Exams should be used as learning tools, not just as assessment tools inclined to judge, classify, and rank students. Online learning is an opportunity to eradicate the false concepts that some students have towards knowledge. Some of them consider that the purpose of studying is to obtain a grade and approve a course. Evidence is that when they receive their exams, some basically check their grade, place the exam into the binders or throw it in the trash, and the learning process ends.

For this reason, teachers should train their K-12 students in the use of exam wrappers. The main goal of exam wrappers is that students become aware of their achievements, reflect on their correct, incorrect, and incomplete answers, and adapt their scholarship accordingly. Exam wrappers prompt students to reflect on how they should prepare for exams, the skills they should apply, their accurate contributions and ideas, the kind of mistakes they made, and the study habits’ adjustments that will enhance their learning and preparation for their next exams and tasks. Indeed, exam wrappers address the analysis of students’ positive outcomes, opportunities, limitations, performance, and behaviors. Consequently, students learn to self-assess their knowledge and self-regulate their study, positively

affecting their learning. Exam wrappers are so useful that if teachers make them a worthwhile habit in the online classes, students will value this tool and adjust it for life-long learning.

Some questions that teachers should ask students after exams are:

- How many hours did you spend revising?
- What was the effectiveness of the strategies that you use to prepare for the exam?
- What could you do otherwise in the future?
- What is your perception of your understanding before and after taking the exam?
- What mistakes did you make on the exam?
- What more effective study strategies do you think that you may apply in next time?
- How was your emotional experience before, during, and after the exam?

It is pivotal that teachers make timely and effective feedback and reflection to increase their students' progress. Wise choices, failures, and mistakes should be used to improve metacognition and learning. For instance, teachers can propose that students create rubrics and make solid comments about their peers' jobs. Through training and time, students become more independent and judge how effectively they are learning, and structure learning plans, steps, procedures, times, and spaces that are favorable to them. Teachers should show students that learning and assessment are neither stringent nor monotonous. If students understand that learning is exciting, they will feel motivated to experiment with their ideas, make suggestions to their teachers and peers, and enjoy the online learning dynamics.

3. Conclusions

Self-directed learning is a must 21st-century skill, mostly when education and society are changing and online interaction prevails. Most countries recognize that equal access to education is a right. Nonetheless, governments should provide the resources and tools that K-12 students need to keep studying. Teachers should exert their leadership to assist particular situations of the students, respond to their needs and talents, discover their learning styles and multiple intelligences, as well as identify, through the teaching practice, effective strategies specifically for their particular group of students. Teachers should adjust curricula to provide reasonable, engaging, meaningful, and valuable content to their students to apply in their daily lives, which is a great tool to prevent dropout. Therefore, they should identify out-of-school risk factors, motivate students, support them, and encourage them to be independent learners.

The most successful K-12 students set, assess, and adapt their goals according to the diverse demands across multiple contexts. Unfortunately, when students lack the ability to adjust their current approaches to more successful ones, they tend to develop apathy against learning, do not analyze, and do not boost critical thinking development. Instead, they focus on superficial features and ignore

underlying principles, concepts, and theories. Consequently, teachers should integrate self-directed learning and metacognitive tasks into their classroom practice or in blended and online education.

Nowadays, individuals are expected to shape their own lives, make choices, and take responsibility for their actions. Then, the current generation of K-12 students must be prepared for flexibility, resiliency, critical thinking skills, and lifelong learning. Teachers should make them aware that they will have to keep acquiring new knowledge and skills throughout their entire academic and professional career. Therefore, teachers should help students develop their ability to be autonomous learners by giving them choices and responsibility to perform active roles and be involved in their learning process. Teachers should enhance students' skills to build connections with their families and open the doors to have fruitful learning experiences in which students make presentations, solve problems, communicate, discover the learning strategies that work for them, make changes when necessary, research, propose, debate, take responsibilities, lead, and collaborate with others. That way, students have multiple opportunities to develop meaningful learning, academic eagerness, self-confidence, reflexive practices, as well as the skills to foster lifelong learning no matter the environment that they endure because their motivation and knowledge are robust.

Conflict of interest


The author certifies NO affiliations with or involvement in any organization or entity with any financial interest in the subject matter or materials discussed in this manuscript.

Author details

Adriana Carolina Torres Escobar
Ph.D. in Education, Faculty of Education, Universidad Santo Tomás, Bogotá,
Colombia

*Address all correspondence to: adrianatorrese@ustadistancia.edu.co

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Effects of the Peace Education Program on the Social and Emotional Behaviour for Pre-School in the Sultanate of Oman

*Mahfouda Rashid Al Mushaiqri, Zahari Bin Ishak
and Wail Muin Ismail*

Abstract

The education of peace has become a prominent pre-requisite for societies to survive in this competitive globalised system. As a result of the tremendous technological development, especially in communications and the intermingling of interests among members of societies, and the codification of many issues of common concern among nations, it is very necessary to set foundations for peaceful co-existence among human beings. Johnson and Johnson, stated that students should be equipped with core values such as respect for the efforts and ideas of others, an inclusive relationship with people, skills for compassion and peaceful conflict resolution. Furthermore, the present chapter provided a study of peace education program (PEP) for pre-school children aged (4–6) years in Oman. Where the program contains (28) training sessions are offered within (15) weeks at the rate of one hour per session. The researcher used a scale of two images, the behaviour of the children was measured before and after the experiment, where the researcher adopted the quasi experimental method, the sample consisted of (40) children in the experimental group and (40) children in the control group. In addition, the results of the study were in favour of the experimental group, where an improvement in their behaviour was observed after being enrolled in the program.

Keywords: peace education, emotion behaviour, social behaviour, pre-school

1. Introduction

Peace is the highest level that who help spreads tranquillity, happiness, harmony and balance; not only with others [1–3]. But is peace of mind and inner tranquillity with oneself of mind which is full of love and enables the ability to live tranquillity. Psychological peace and self-alignment is the top of the spiritual pyramid to live happily, with comfort and peace of mind. All of these could be gained through continuous training on how to deal with others on a win-win basis [4]. In addition, peace is a human need, without which people live in terror and fear, lose their

constancy and make them deal with the surroundings as enemies, lose friendship and respect for people. Peace education in UNICEF refers to viewed peace is a set of values and behaviours that drive individuals to social interaction and active participation, which are based on the principles of democracy, tolerance, solidarity and all human rights that work to reject violence, and dialogue replaces conflicts, and ways to participate fully in the process of Community Development [5]. In addition, peace education is a philosophy and process concerned with gaining knowledge about various aspects of peace, violence and peace-making skills. It is also the process of instilling elements of peace education in learners to enable them to develop their abilities to demonstrate tolerance and skills for solving non-violent conflicts and a sense of dedication in creating peace education [6].

Harris and Morrison [7], also noted that peace education not only guarantees a philosophical dimension such as love, mercy, respect and nonviolence, but is also a process that includes listening, meditation, thinking, cooperation and conflict resolution skills. As, we all today face many problems that threaten the whole world. One of the most serious of these problems is the problem of conflict and violence in its various forms, such as violence with self and social violence. It was therefore normal that the world represented in United Nations promotes a culture of peace in the world, especially among children [8].

Furthermore, the peace education program is designed to teach the skills and values associated with peaceful behaviour, encouraging adults and children to think constructively about social or emotional issues, and developing positive attitudes towards coexistence, and solve the problems that may arise in their societies by peaceful means. Children are affected by the conflicts and violence that revolve around them and what they watch from programs and news on television, which leaves deep psychological scars on children, with all the painful feelings that accompany them, this requires psychological support for this age group to restore balance [9]. It has also become the duty of those responsible for raising children to help them face the challenges that surround them by instilling a culture of peace, its concepts, and its skills, and this will only be achieved through peace education that works to create a child-friendly environment and help them learn, as Future peace is not limited to the absence of outright hostility, but it also includes the employment of peace-making processes and skills, which will lay the foundations for lasting peace [5].

Moreover, this confirms that the first years of a child's life are essential in composition of their intelligence, personality and social behaviour. Children are born with a range of social capacities, physical and psychological abilities enabling them to communicate, learn and develop; if they do not receive attention they seek from adults, such abilities may decrease. Studies also suggest that behaviour develops in children occurs before the age of seven, and because children are the future of our lives in next generations to come, they honour the values of culture and maintain the social and moral values. Therefore, it is very important to start by promoting these values with children through related useful educational programs [10].

Oman Vision 20/40 stated that Oman seeks to be among the top ten countries that enjoy world peace [11]. The present study came to support Oman's vision 20/40 for reaching the forefront of peace.

In addition, Muscat Daily (2018) showed, in a recent newspaper report, there are 387 cases of abuses against children in Oman (e.g. physical, verbal, negligence, and sexual harassment), which occurred between January and June 2018. The cases reported through the free hotline (1100) of the Ministry of Social Development uncovered many of the cases of abuse against children which were hidden before. Despite the existence of the Omani Children's Code issued by a royal decree number

22/2014 [12] to protect children and preserve their rights, still this is not enough. Children need to learn how to take preventive measures before the incident in order to protect themselves from any abuse that may occur. The problem of the study is formulated accordingly with some previous scholars' calls, for instance, Al Sawafi [13] who strongly recommended the importance of designing a new curriculum to measure social skills of pre-school and develop their social skills, since the existing curriculum in Oman does not provide any significant elements to deal with the preschoolers' behavioural and emotional issues. Hence, the researcher tries to formulate a new comprehensive framework to meet the needs of children to enhance their behaviour by training them accordingly in different situations and environments. In search of solutions, "evidence on the role of supportive school environments in buffering negative community processes and fostering resilience in youth affected by violence is increasing" [14–16]. While educational programs for developing school environment and peace building have been globally agreed on as helpful in providing safe learning environments [17], to pre-school children's experience and knowledge, the social dynamics in societies affected by ferocity and the contextual hindrances that may interfere with their translation into practices are often overlooked and left, especially within the Middle East region. Before putting into account educational methods to address problems of peace and violence in schools, we thus first explore the core issue of this research from a socio-educational perspective where a significant body of votes share ideas and opinions, which might give authenticity to the research findings.

In eighties and nineties (in the beginning of the Renaissance in Oman), the Omani society put a remarkable organised interest concerning children's rights. The focus, however, was more directly on children's literacy and numeracy than on instilling the values of peace in children, which in turn had a negative impact on the behaviour of children. This is because of the negative role of media in portraying children in cartoons, which implants many negative images in children's mind. Nowadays, it is different from the past because of many external influences affecting children. Moreover, today's family is much busy working outside home. This thus gives children an opportunity to spend much time watching TV. Also, pre-school teachers are constantly complaining about the aggressive behaviour of children.

On the other hand, children need to learn how to take preventive measures before the incident in order to protect themselves from any abuse that may occur. This in turn confirms to the researcher the firm desire to teach children peace education.

Peace has as many definitions as its types and thus it might not be easy to have one unified definitions i.e. Harlock defines peace, as the sharpening of consciousness in individuals to avoid conflicts between them and it promotes a culture of preventing disputes between nations and large groups, and the promotion of social development to motivate individuals to work on development and production, and work to create opportunities and conditions that help people settle [18].

The study sought to modify children's social and emotional behaviour through the peace education program. Social behaviour is a set of works, performances, experiences, and activities that pre-school children learn and repeat, and they train in a regular manner until they enter into their social interaction with others and the things around them [19]. In procedural terms, the researcher defines it as the degree to which the examiners (children of the study sample) obtain a scale of social behavior from the peace education program prepared by the researcher in the following skills (Self-care skills (SCS), Communication skills (CS)). Emotional behaviour is defined as the way in which children acquire knowledge, skills and attitudes to know their feelings and how to manage them, set positive goals to

achieve them, care for others, establish and maintain positive relationships with them, make responsible decisions and deal with personal situations effectively [20]. The researcher defines it as The emotional behavior shown by the examined (pre-school children) through their dealing with the situations and events they pass through after training them on the following skills (Self-Awareness (SA), Emotional Management (EM), Motivaion (M)) in the peace education program prepared by the researcher.

2. Review objectives and hypotheses

The study aimed to build a Peace Education Program (PEP) that demonstrates social and emotional behaviour in children. Accordingly, the objectives of the study came as follows:

1. In order to determine whether there are statistically significant differences in the social behaviour of preschoolers between the experimental group and the control group after the Peace Education Program (PEP), the first hypothesis came: There are no statistically significant differences in the social behaviour of children at some point Pre-school between the experimental and control group after PEP;
2. In order to determine whether there are statistically significant differences in the emotional behaviour of preschoolers between the experimental group and the control group after PEP, the second hypothesis came which is: There are no statistically significant differences in the emotional behaviour of preschoolers between the experimental group and the group Control subjects after PEP;
3. As for determining whether there are statistically significant differences between males and females in pre-school stage in social and emotional behaviour after infection with PEP, the third hypothesis came: There are no statistically significant differences between males and females in pre-school stage in Social and emotional behaviour after PEP.

To answer the research questions and investigate the accuracy of the proposed hypotheses, the study has integrated two theories from which the researcher has formulated a new framework to analyse the data as follows: Maslow's theory argues that human beings have basic needs to be fulfilled first and on which other needs are based. That is children's basic needs ought to be fulfilled and then other needs with higher virtues such as co-existence and peaceful life and constructive dialogues are fulfilled. The study has adopted Maslow's theory because of its emphasis on individuals' constructive dialogue, respect, love, peace, cooperation, tolerance and honesty with one another. In other words, preschoolers can reach to and possess such virtues after they reach to self-realisation comprehensively built on other needs on the hierarchy including the most significant one at the base of the pyramid. Along with Maslow's theory, this study is built on Daniel Goleman's Model (1995). Goleman's theory sheds light on emotional intelligence which generates/is associated with a range of different behaviours, the most important of which as claimed by Goleman [21] is emotional behaviour, based on which many human characteristics and virtues can be analysed/measured". In 1998 Goleman formulated a new version of the theory "an emotional intelligence -based theory of performance" consisting of a set of guidelines for competencies and effectiveness and for development of individual worker. He claimed that EI is the ability to understand and control our feelings and

emotions, which, thus, helps create real, persuasive leaders. He also formulated five domains of EI. These domains include: 1- self-regulation, self-awareness, motivation, empathy and social skills. These five domains consist of 25 competencies and include social competence and personal competence. Self-awareness is one's ability to realise and understand their moods, feelings and emotions and their effects on others. Self-management is one's ability to control reactions and emotions of oneself. Social skills are one's ability to maintain constructive relationships and build a network. Motivation is one's ability to deal with challenges and be optimistic [22] Since this study investigates the dimensions of the traits and faults of emotional behaviour, the proposed theory is the most applicable one to provide a new explanation for the causes of the problems of emotional behaviour that negatively influence the process/environment of peace education of pre-school students. The results of the possible problems of emotional behaviour generated by this theory may greatly help decision-makers and other personnel to take the necessary steps and procedures in making/finding proper solutions that help promote and spread peace education at pre-schools in Sultanate of Oman.

3. Previous studies related to study

Al-Saidi [23] evaluated the effectiveness of enrichment activities in planting the concepts of peace in kindergarten children. To achieve the objectives of the study, the semi-experimental method was used on a random sample (n = 46) of kindergarten children in the Holy City in the second semester of 2013. The sample included 23 children of the experimental group, and 23 children in the control. The researcher prepared a daily program concerning the education of peace (Peace Unit). The researcher concluded that integrating peace education in the curricula enriches the kindergarten programs, which thus boost students' motivation and desire to effectively and quickly learn.

A significant study was conducted by Darweish and Abdulsamad [24] about peace education existence and influence in education in schools in Iraqi Kurdistan. The authors adopted qualitative research approach and critical discourse analysis to shed light on the content of educational textbooks in respect with violence, principles and values. The author concluded that Kurdistan's school curriculum suffers from different issues including violence, inequality and discrimination, which are caused by the dominant political group. Such issues have serious academic and socio-psychological impact on school children. The authors emphasised that Kurdistan's curriculum lacks the core foundations necessary to enhance students' cultural and ethnic backgrounds. The study finally found that the terminologies, concepts and words used in school textbooks focus on Muslims' alienation of the other ethnic groups rather than on the more positive aspects of Islam that should be learned and shared. Thus, it is hardly to find essential terms such as peace, equality and tolerance used in the curriculum due to the dominant group promulgating its knowledge as a sign of domination and influence.

Very recently, Murano, Lipnevich, Walton, Burrus, Way & Carrasco [25] conducted a study about measuring social and emotional skills in elementary students. They conducted two searches to develop and validate items in order to measure emotional and social skills in third, fourth and fifth grade students. Having applied Big Five personality model as an assessment framework, the authors concluded that emotional and social skills can be validly and reliably measured in elementary students. The authors also concluded that team work is the most important factors leading elementary students for academic success and achievement.

In astonishing paper written by Panayiotou & Wigelsworth [26], social and emotional behaviours were exclusively investigated. The authors investigated a longitudinal sample of 1626 students attending 45 elementary schools in the UK. Having used structural equation modelling accounting for data-clustering, prior academic attainment, gender and within-time covariance, the authors examined the temporal relations between school connectedness, mental health difficulties, social-emotional competence and academic attainment. The authors emphasised that social- emotional competence exerted a valuable influence on school students' mental health difficulties and school connectedness. The authors concluded that students who have greater social-emotional competence experience fewer mental health issues and difficulties and thus they may have higher academic attainment.

Al Sawafi [13] conducted a study to measure the effectiveness of a training program in developing some social skills among a sample of pre-school children. Three social skills were identified (empathy, communication with others, cooperation). The program was applied to a sample of (20) pre-school children (ranging from 4 to 6) years from Sanao Private School in Sharqiyah North Governorate in the Sultanate of Oman. The researcher used the Social Intelligence Scale in the study of Al-Qatami and Al-Yousef [27], which consists of a photographic scale and a note form for the teacher. The results of the study confirmed the correctness of the first hypothesis about the presence of statistically significant differences in the social skills (empathy, communicate with others, cooperation) with pre-school children in the first and second measurements. This is because of the training program used in this study. The results also confirmed the

	Variable	Mean	SD	Skewness	Kurtosis
Social Behaviour	Self-Care Skills	1.4938	.26821	.731	-.475
	Communication Skills	1.5896	.23562	.673	-.609
Emotional Behaviour	Self-Awareness	1.7650	.20256	-.524	-.339
	Emotions Management	1.7578	.23861	-.546	-.622
	Motivation	1.7234	.23053	-.371	-.561

SD = Standard Deviation.

Table 1.
Normality tests for study variables.

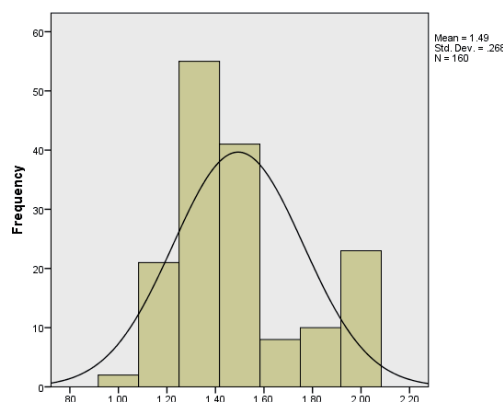


Figure 1.
Factor analysis for self-care skill (SCS).

second hypothesis which indicates that there are no statistically significant differences between the second and follow-up measurements in social skills (empathy, communicate with others, cooperation) among a sample of pre-school children.

4. Data analysis and findings

Normality tests were performed to ensure sample normality, subsequently, ANCOVA test was performed as an inferential analysis, in order to examine the study hypothesis.

Table 1 shows the values of skewness and kurtosis as the normality tests and the mean and the standard deviation for each variable for the study variables. The results show that all variables are considered normally distributed as the skewness and kurtosis values are between ± 2 which is considered acceptable according to George & Mallery (**Figure 1**) [28].

Table 2 shows the results that the KMO value is 0.782 which mean that the used data is considered enough for factor analysis. The results show the significant value of the Bartlett's test which is (.000) less than 0.05 indicating that the used data of this factor is adequate for the factor analysis. On the other hand, the factor loading values show the variance explained by the variable on this particular factor (SCS). The results show that all factor loading is greater than 0.4 which indicate that, as suggested by Hair et al. [29], there is no need to eliminate any items from further analysis due to low loading (**Figure 2**).

No.	Items	Loading		
1.	SCS1	.424	KMO	.782
2.	SCS2	.867	Barlett's test of Sphericity	428.444
3.	SCS3	.449	Sig.	.000
4.	SCS4	.870		
5.	SCS5	.511		
6.	SCS6	.816		

Table 2.
 Factor analysis for self-care skill (SCS).

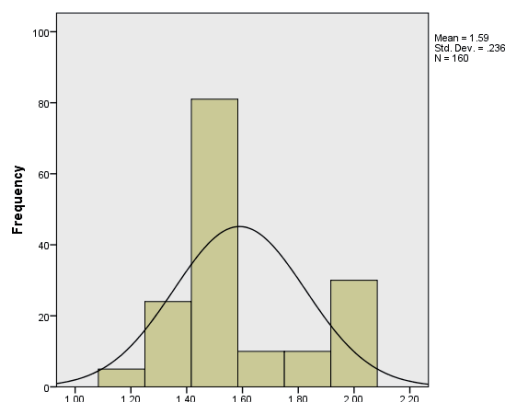


Figure 2.
 Factor analysis for communication skill (CS).

No.	Items	Loading		
1.	CS1	.672	KMO	.731
2.	CS2	.898	Barlett's test of Sphericity	360.737
3.	CS3	.753	Sig.	.000
4.	CS4	.854		
5.	CS5	.800		
6.	CS6	.819		

Table 3.
Factor analysis for communication skill (CS).

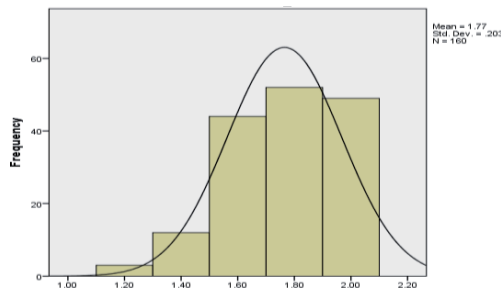


Figure 3.
Factor analysis for self-awareness (SA).

No.	Items	Loading		
1.	SA1	.507	KMO	.562
2.	SA2	.678	Barlett's test of Sphericity	21.817
3.	SA3	.538	Sig.	.016
4.	SA4	.557		
5.	SA5	.200		

Table 4.
Factor analysis for self-awareness (SA).

Table 3 shows the results that indicate the suitability of the Communication Skill (CS) factor detection. The results show that the KMO value is 0.731 which is greater than 0.5 indicating that the used data is considered enough for factor analysis.

In addition, the results show that Bartlett's test significance level of (.000) which is less than 0.05 indicating that the used data of this factor is adequate for the factor analysis too.

Also, the factor loading values of the communication skill (CS) factor's items that are greater than 0.4 which means that there is no need to eliminate any item from the further analysis due to low loading as suggested by Hair et al. (**Figure 3**) [29].

Table 4 shows the results that the KMO value is 0.562 which is greater than 0.5 indicating that the used data is considered enough for factor analysis. In addition, the results show that Bartlett's test significance level of (.016) is less than 0.05 indicating that the used data of this factor is adequate for the factor analysis too. Also, the factor loading values of the self-awareness (SA) factor's items are greater than 0.4 except only one item (SA5, loading value = .200) that has loading value less

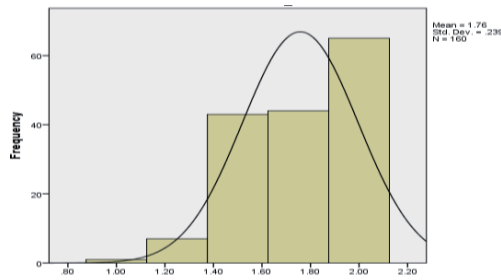


Figure 4.
 Factor analysis for emotion management (EM).

No.	Items	Loading		
1.	EM1	.661	KMO	.594
2.	EM2	.619	Barlett's test of Sphericity	22.790
3.	EM3	.569	Sig.	.001
4.	EM4	.617		

Table 5.
 Factor analysis for emotion-management (EM).

than 0.4 which means that this item should be eliminated from the further analysis due to low loading as suggested by Hair et al. (Figure 4) [29].

Table 5 shows the results that indicate the suitability of the Emotion-Management (EM) factor detection. The results show that the KMO value is 0.594 which is greater than 0.5 indicating that the used data is considered enough for factor analysis. In addition, the results show that Bartlett's test significance level of (.001) which is less than 0.05 indicating that the used data of this factor is adequate for the factor analysis

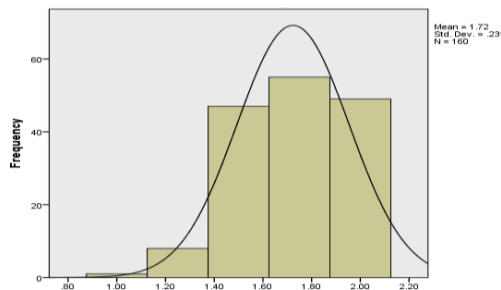


Figure 5.
 Factor analysis for motivation (M).

No.	Items	Loading		
1.	M1	.701	KMO	.500
2.	M2	.640	Barlett's test of Sphericity	28.248
3.	M3	.630	Sig.	.000
4.	M4	.533		

Table 6.
 Factor analysis for motivation (M).

too. Also, the factor loading values of the emotion-management (EM) factor's items that are greater than 0.4 which means that no need to eliminated any items from the further analysis due to low loading as suggested by Hair et al. (**Figure 5**) [29].

Table 6 shows the results that indicate the suitability of the Motivation (M) detection factor. The results show that the KMO value is 0.500 which is equal to the limit of 0.5 indicating that the used data is considered enough for factor analysis. In addition, the results show that Bartlett's test significance level of (.000) which is less than 0.05 indicating that the used data of this factor is adequate for the factor analysis too. Also, the factor loading values of the motivation (M) factor's items that are greater than 0.4 which means that no need to eliminated any items from the further analysis due to low loading as suggested by Hair et al. [29].

5. Testing research hypotheses

In the following section, the research hypotheses are tested:

5.1 Testing the differences in the social skills of preschool children between the experimental and the control group of the (PEP)

The first (RH1) hypothesis states that "There are no significant differences in the social behaviour of preschoolers between the experimental and the control group after the Peace Education Programme (PEP)." and in order to test this hypothesis, ANCOVA test is used as well.

The analysis of covariance (ANCOVA) is a statistical test used to control for the effects of a confounding variable (covariate) on the relationship or association between a predictor and outcome variable. With ANCOVA, the covariate is measured at a continuous level. The predictor variable can represent independent groups or levels of a categorical variable. The outcome is continuous with ANCOVA [30].

The first hypotheses assume that there are no significant differences in the social skills of preschool children between the experimental and the control group of the peace education program (PEP) which means that there is a pre-test and a post-test for each social skills. There is also an independent variable with two groups (control and experimental), so by using ANCOVA test, the independent variable will be the students' group (control and experimental), the dependent variable will be the post-test and the covariate variable is the pre-test.

The ANCOVA test results are shown in **Table 7**.

Table 7 shows that there are significant differences in social skills of preschool children between the experimental and the control groups after receiving the peace education program (PEP) whereas the significance level is .000 which is less than 0.05. This means that social skills of the preschool children are significantly enhanced after receiving the PEP. This is also indicated by noticing the mean values before ($M = 1.43$) and after ($M = 1.93$) the PEP with an effect size percentage of .95.

As a result, we can reject the null hypothesis and accept the alternative hypothesis as the social skills of the pre-schoolers have enhanced significantly after receiving the peace education program (PEP).

5.2 Testing the differences in the emotional behaviours of preschool children between the experimental and the control group of the (PEP)

The second (RH2) hypothesis states that "there are no significant differences in the emotional behaviour of preschoolers between the experimental and the control group after the Peace Education Programme (PEP)." In order to test this hypothesis,

Variable	Test	Mean	SD	F	Sig.	Effect Size %
Social	Control	1.4319	.06097	1588.119	.000	95.4
	Experimental	1.9306	.05731			

Sig. <0.05.

Table 7.
 ANCOVA results for testing the differences in the social skills of preschool children between the experimental and the control group of the (PEP).

Variable	Test	Mean	SD	F	Sig.	Effect Size %
Emotional	Control	1.6813	.10669	298.524	.000	79.5
	Experimental	1.9500	.04419			

Sig. <0.05.

Table 8.
 ANCOVA results for testing the differences in the emotional behaviours of preschool children between the experimental and the control group of the (PEP).

Variable	Group	Mean	SD	T	df	Sig.
Self-Care Skills	Male	1.8981	.12959	-.081	38	.936
	Female	1.9015	.13273			
Interpersonal Relation Skills	Male	1.9352	.08361	.115	38	.909
	Female	1.9318	.09839			
Communication Skills	Male	1.9537	.07681	-.358	38	.722
	Female	1.9621	.07149			
Self-Awareness	Male	1.9111	.12314	-.674	38	.505
	Female	1.9364	.11358			
Emotions Management	Male	1.9722	.08085	-.207	38	.837
	Female	1.9773	.07356			
Empathy	Male	1.9630	.07130	.037	38	.971
	Female	1.9621	.07149			
Motivation	Male	1.9306	.11522	-.318	38	.752
	Female	1.9432	.13210			

Sig. <0.05.

Table 9.
 Independent-sample t-test results.

ANCOVA test is used as well. The second hypothesis assumes that there are no significant differences in the emotional behaviours of preschool children between the experimental and the control groups of the peace education program (PEP) which means that there is a pre-test and a post-test for emotional behaviours. There is also an independent variable with two groups (control and experimental). By using ANCOVA test, the independent variable is the students' group (control and experimental), the dependent variable is the post-test and the covariate variable is the pre-test. The ANCOVA test results are shown in **Table 8**.

Table 8 shows that there are significant differences in emotional behaviours of preschool children between the experimental and the control group after receiving the peace education program (PEP) whereas the significance level is .000 which is

less than .05 meaning that emotional skills of the preschool children significantly enhanced after receiving the PEP. This is indicated also by noticing the mean values before ($M = 1.68$) and after ($M = 1.95$) the PEP with an effect size percentage of .80.

As a result, we can reject the null hypothesis and accept the alternative hypothesis as the emotional behaviours of the preschool children have significantly enhanced after receiving the peace education program (PEP).

5.3 Testing the differences between male and female preschool children in social and emotional behaviour after having the (PEP)

The fifth hypothesis states that “There are no significant differences between male and female preschool children in social and emotional behaviour after having the peace education program (PEP)” and in order to test this hypothesis, Independent-sample t-test is used which the independent variable will be the students’ gender (male and female) and the dependent variables will be the emotional and social behaviour dimensions and the results are shown in **Table 9**.

Table 9 shows that there are no significant differences in all social and emotional behaviours of preschool children between male and female students after receiving the peace education program (PEP) whereas the significance levels are more than 0.05 for all variables meaning that student gender does not affect the social and emotional behaviours of the preschool children after receiving the PEP.

As a result, we accept the null hypothesis as there are no statistically significant differences between male and female preschool children in term of social and emotional behaviour after receiving the peace education program (PEP).

6. Conclusions

This study concludes that there is an impact of the peace education program on the social and emotional behaviour of preschool children. The study shows that peace is an important prerequisite for the development of a balanced life for people, especially in childhood stage. The results of this study may provide many benefits of measuring and improving children’s behaviour through program and it may support the curriculum in Oman. This study has been successful to focus on some aspects of growth and behaviour enhancement in children. It is likely to be beneficial to learners, teachers, curriculum designers, and educational policy-makers in Oman.

The study was based on Maslow’s theory and Goleman’s theory, and presented an integrated program in peace education for preschool children, and also provided a measure of social and emotional behaviour, through which teachers, supervisors and stakeholders in childhood can use it to measure children’s behaviour and work to develop them to be effective elements in society, and grow up Balanced personalities avoid them falling into the wrong and harmful behaviours and behaviours of society.

This study is important because it sheds light on the importance of measuring the behaviour of children and working to improve them on the basis of scientific and well-studied. For this purpose, the study included seven basic dimensions of the skills of social and emotional behaviour, namely (self-care, interpersonal relationships, communication, self-awareness, emotion management, empathy and motivation). Which was measured through a scale of two images, and was developed through the peace education program that the study sample received in the experimental group, and the results of the study showed a noticeable development in the behaviour of the experimental group children compared to their low behaviour in which the scale showed before joining the program.


The study also came out with a set of recommendations, the most prominent of which was the importance of implementing the peace education program in the pre-school education stage in Oman in parallel with the applied curricula, and training teachers on using it with children.

Author details

Mahfouda Rashid Al Mushaiqri*, Zahari Bin Ishak and Wail Muin Ismail
Ministry of Education in Sultanate of Oman, University of Malaya in Malaysia,
Muscat, Sultanate of Oman

*Address all correspondence to: mahfoodha1974@hotmail.com

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Teachers' Time for Planning, Assessment and Development Connected to Staff Well-Being in Early Childhood Education

*Johanna Heikka, Sanni Kahila, Harri Pitkäniemi
and Eeva Hujala*

Abstract

The planning, assessment and development (PAD) of pedagogy carried out by early childhood education (ECE) teachers is an important quality factor in ECE. In Finland, the working hours reserved for PAD tasks for ECE teachers were increased from 8 to 13% in 2018. The purpose of this study was to investigate ECE teachers' and centre directors' perceptions of the impact of increased PAD hours on the well-being of ECE staff. Based on the mixed-methods approach, 325 ECE teachers and 107 ECE centre directors participated in the study. The results of the study indicated that, apart from the atmosphere in the work community, the impact of working hours on the well-being at work was positive. In particular, the reform has increased the well-being of teachers at work. The increased PAD hours have had only a minor impact on the well-being of all staff.

Keywords: early childhood education, planning, assessment, development, well-being

1. Introduction

The purpose of this study was to find out how early childhood education (ECE) teachers and centre directors perceive the links between increased planning, assessment and development (PAD) hours and the well-being of ECE staff. PAD work is seen as an important factor in the quality of ECE and pedagogy [1, 2]. In the basics of the *National Core Curriculum for Early Childhood Education and Care* [2], the importance of pedagogy as a whole has become more important than before, which has increased the number of statutory responsibilities and planning of ECE teachers. In spring 2018, a new contractual regulation entered into force in ECE, both in the municipal and private sectors, which increased PAD work for ECE teachers, special teachers and centre directors from 8 to 13% [3].

The contractual regulation also defined guidelines for the organization of PAD hours. Firstly, PAD hours are intended for planning, assessment and development work outside the children's group, which is included in the rosters when the presence of an ECE teacher and pedagogical expertise in the children's group are not

necessary. There must be sufficient and suitable length of PAD hours, and the variation of the needs of PAD hours during the year is taken into account. In addition, the workplace must have sufficient calm facilities and equipment for working, and part of the PAD hours must also be available outside the workplace if necessary [3].

As the reform of working hours in PAD is fairly recent, research into its implementation and impact on ECE is still limited. Ranta, Tilli and Kettumäki [4] carried out a study on the implementation of PAD hours for ECE teachers. Their report showed that implementing PAD hours in accordance with the new policies is challenging. Other challenges in the implementation in particular included shift planning, adequacy of facilities and appropriate equipment, adequacy of personnel, and an understanding of the importance of PAD and the tasks involved. As the spring 2018 reform of PAD hours aimed to meet the increased demands of ECE teachers' work in addition to improving the quality of pedagogy and ECE [3], this study focuses on the impact of the increased PAD hours on the well-being of ECE teachers and the entire ECE centre staff.

1.1 Planning, assessment and development in ECE

Every child has the right to receive ECE and to participate in pedagogical activities that are planned, goal-oriented activities carried out by ECE professionals; the activities aim to support well-being and create the best possible conditions for learning and development [1, 2]. Documents guiding ECE, ECE curricula and information on the child's development, growth, learning and its content form the basis and objectives for pedagogy [2, 5–8]. Planning is carried out on many levels, including child group plans, individual plans and plans for the ECE centre environment ([7], p. 62–63).

Assessment is a key form of pedagogy that provides information on children, a group of children, the ECE centre environment and the operational culture [9]. This information, in turn, serves as a basis for the planning of ECE and for the development of activities [7], and it is carried out for both a longer and shorter period as a process that is constantly built and transformed by new information obtained through assessment [9–11]. The aim of ECE is to implement pedagogy that is child-centred and inclusive of children and that offers children unifying learning experiences [2]. By assessing the knowledge, strengths and aspirations of children collected through observations and documentation, as well as environmental development needs, educators form an idea of what kinds of pedagogical activities are needed, what objectives are set for activities and development, and how the competences and practices of ECE staff are developed [8, 12]. The goal-oriented implementation of planning, assessment and development is a key part of the national and international quality indicators for ECE [10, 12–14].

In Finnish ECE settings, an ECE teacher usually works for a team of educators with one or two childcare nurses or with a social educator specializing in ECE and a childcare nurse. Due to the Act on Early Childhood Education and Care [1] and the basics of the *National Core Curriculum for Early Childhood Education and Care* [2], the pedagogical responsibility of the ECE teachers has increased. The pedagogical responsibility of an ECE teacher includes the planning, assessment and development of the pedagogical activities of a group of children. Pedagogy is carried out in cooperation with the team [2]. The importance of ECE teachers' expertise for pedagogical quality has also been recognized internationally [15–17]. Therefore, in many countries around the world, ECE teachers are increasingly expected to act as the pedagogical leader in their teams and to participate in the pedagogical planning, assessment and development at the centre level [15, 16, 18].

1.2 Well-being at work in ECE

There is a clear link between the organization of ECE work and the conditions in the working environment. Good working conditions affect well-being, particularly motivation and job satisfaction [12]. International studies have also increasingly shown that early childhood educators' well-being at work is linked to their ability to deliver quality ECE [19–23]. The educators' well-being and the quality of the interactions between the educator and children and the working conditions also have an indirect impact on the development of children [12, 21, 23].

Research sees well-being at work as a broad and holistic phenomenon. Well-being is influenced by a variety of physical, mental, social or organizational factors that an employee can experience as either negative, burdensome or positive [19–22]. The theory commonly used in research (e.g., refs. [20, 22]) is Demerouti et al.'s [24] model of job demands and resources that affect well-being at work. Job demands refer to the challenging, even stressful, qualities of work, while job resources are the qualities that can lighten the demands of work [20]. The work community can have both stress factors that negatively impact well-being at work and positive resource factors at the same time [20, 22]. The ECE sector has been described as demanding [21, 25]. In particular, burdensome stressors have been described, such as haste, lack of human resources and large groups of children [26, 27], ambiguity about the work tasks of different professional groups, a noisy working environment and conflict in the work community (e.g., ref. [26]). However, studies have shown that ECE also has factors that support well-being and make work feel rewarding despite its demands [21, 22, 25].

ECE work is very interactive, and the social environment, atmosphere and interactive relationships play a key role in well-being at work (see ref. [19, 21, 22, 25]). Studies show that the well-being of the individual is also important for the well-being of the entire work community. Motivated and healthy workers perform better in their jobs and are better able to utilize their own resources and commit to work [20], which, in turn, has a positive impact on the entire work community, including children and adults, improving the well-being and efficiency of the work community (see refs. [22, 28]).

To account for the diversity of well-being at work and the individual and community dimensions, the links between increased PAD hours and well-being at work were examined from two perspectives in this study. First, this study explores the impact of increased PAD hours on the well-being of teachers themselves, and second, it examines how the ECE centre directors understand that the increased PAD hours have affected the well-being of the entire work community. The perceptions were examined in terms of work motivation, coping with work, the social climate of the work community and organizational factors.

2. Implementation of the study

The study took advantage of the mixed methods approach. The data were collected through a questionnaire for ECE staff which contained both quantitative measurement-based sections and open questions to be analyzed qualitatively. Such a convergent design is used to find a view of the same research focus produced by quantitative and qualitative data and analysis. Presumably, research findings from quantitative and qualitative items can strengthen each other through “similar findings”, but they may provide new and different perspectives on the studied phenomenon ([29] p. 68–77).

In this study, the impact of increased PAD hours on the well-being of ECE teachers and all staff was studied through the views of ECE teachers and centre directors;

teachers assessed the impact on their own well-being at work and directors on the well-being of all staff at work. For this reason, separate information collection forms were prepared for the teachers and the directors of the ECE centres. The quantitative section included the same items for both the teachers and directors. The quantitative survey on well-being at work was developed using previous well-being research carried out in the context of ECE and focusing on four themes: well-being factors related to work motivation (4 items), work management and coping (5 items), the organization of teamwork (4 items) and atmosphere of the work community (3 items). Respondents were asked to assess whether the increased PAD hours have had a positive, negative or no impact on each factor of well-being at work. The qualitative section included some of the same open-ended questions for teachers and directors, while both also had their own questions. In the open-ended questions, only the directors were asked how the PAD hours have affected the management of well-being at work. Other open questions examined the importance of the increase in PAD hours for the quality and leadership of pedagogy. The answers to these questions were used in this study and addressed the changes caused by the increase in PAD hours from the perspective of well-being at work.

The research data were collected in ECE centres in 10 municipalities across Finland and from two ECE organizations in the private sector. A total of 325 ECE teachers and 107 ECE centre directors participated in the study. The data were collected using an electronic questionnaire. A link to the electronic survey was provided to the contact person of the organization, who sent the form links to the ECE centre's teachers and directors. Consequently, the investigators never had direct contact with the participants. The survey was carried out in February 2019, and participants had three weeks to respond to the survey. Among the ECE teacher participants, 87.1% ($N = 283$) worked in the municipal ECE centres and 12.3% ($N = 40$) of teachers worked in the private sector organizations. Regarding the two ECE teachers who responded to the survey, the information about whether they worked in the private or municipal sectors was missing. In turn, 73.8% ($N = 79$) of the ECE centre directors worked in municipal ECE centres and 26.2% ($N = 28$) in the private sector organizations.

The quantitatively analyzed part of the study produced an overview of the well-being at work experienced by teachers and all staff. Well-being at work in general was approached from the perspective of both respondent groups. The information allows teachers to assess their own well-being, while ECE directors assess the well-being of all staff. In addition, the data analysis made it possible to combine the data of teachers and directors, thereby examining whether there is a difference in the responses of teachers and directors and whether they may place different emphases on different issues. To analyze this, descriptive statistics methods were used. It was therefore possible to examine whether the increase in PAD hours in the informant groups is perceived as positive or negative for well-being at work, or in such a way that it has no effect. Although this study systematically only allows for the examination of the links between variables, the links are reported as impacts in order to maintain "genuine" assessments of the impact of the increased PAD hours carried out by the informant groups.

The answers to the open questions were analyzed using qualitative content analysis, which was carried out theoretically so that open responses were first approached in a data-driven manner based on the content; finally, the results of the analysis were compared with the existing theoretical concepts [30]. The texts on well-being at work were coded using the Atlas.ti 8.4 program. Based on their similarities, the codes were grouped into two main categories. The first category included impacts on the individuals' work motivation and coping with work. The second category is about the impact on the atmosphere and functionality of the work community. Both categories included themes that highlighted, firstly, the positive impacts of increased PAD hours and, secondly, the negative impacts on well-being at work.

Finally, the results from the quantitative and qualitative analyses were examined in parallel. Based on the analysis, while the quantitative and qualitative data partly confirmed the same conclusions, the qualitative data also supplemented and deepened the quantitative data. In addition, the qualitative data provided information on themes that were not included in the quantitative data.

3. Results

3.1 Work motivation

The study examined how the increase in PAD working hours is linked to the enthusiasm of ECE teachers and all staff for work, dedication to work, appreciation of work and enjoyment of work. **Table 1** shows that the increase in PAD hours has largely had a positive impact on these factors. In terms of dedication to work and appreciation of work, the views of teachers and directors were along the same lines. However, teachers assessed the impact of the increase in PAD hours on enthusiasm for work and enjoyment of work more positively than directors reported for all staff.

In the qualitative data, enthusiasm for work, dedication to work and enjoyment of work were expressed in teachers' reports of how they had better time to take care of their assigned duties and also invest in the quality of the work due to the increased PAD hours. According to the teachers, the development of the pedagogical activities of the children's group and the competence of the educator team have increased since the change. Deepening into the key tasks of the work has increased teachers' work motivation and dedication to work, as well as the appreciation of work. According to the teachers, the work has become more meaningful, which was reflected in the following examples in the data:

More time for implementation, information searches, new ideas. You get excited about work when you're inventing something new. The meaningfulness of the work is maintained, and enthusiasm is reflected in good ECE. (Teacher 90)

Working is more meaningful, there is a taste for doing it! (Teacher 62)

I personally appreciate my teaching and pedagogical leadership in the team. (Teacher 34)

Work motivation	ECE teachers (%)				ECE directors (%)			
	Positively	No effect	Negatively	In total	Positively	No effect	Negatively	In total
Enthusiasm for work	67.7	21.7	10.6	100% (N = 313)	49	33.3	17.7	100% (N = 102)
Dedication to work	63.4	29.5	7.1	100% (N = 309)	55.9	37.2	6.9	100% (N = 102)
Appreciation of work	64.6	28.6	6.8	100% (N = 311)	58.8	34.3	6.9	100% (N = 102)
Enjoyment of work	61.2	27.9	10.9	100% (N = 312)	46.0	35.0	19.0	100% (N = 100)

Table 1. ECE teachers' and directors' perceptions of the impact of increased PAD working hours on the factors of work motivation.

On the other hand, the additional resources allocated to teachers for PAD tasks were also seen to have a negative impact on the motivation and enjoyment of work by other professional groups in the work community. In the following example, the teacher describes his concern, in particular, about the weakening motivation of childcare nurses at work:

Overall, the increase in the PAD period is a good thing, but we should have thought about resourcing it. If the nurses “patch up” all the planning time, their motivation to work will inevitably decrease. (Teacher 10)

The impact of PAD hours on enthusiasm and enjoyment of work was also highlighted in the answers where teachers and directors described that changes related to PAD working hours have not yet been made to work in practice. Unimplemented PAD hours and the difficulties and challenges related to organizing it caused dissatisfaction for both directors and teachers, but especially for teachers.

3.2 Managing work and coping with work

The assessment of the impact of increased PAD hours on work management and coping with work included five sections: balance between skills and goals, a feeling of capability and sufficiency, stress, workload and coping with work (Table 2). A large proportion of both teachers and directors showed that the increased PAD hours have positively impacted the balance of staff skills and goals. Moreover, both teachers and directors rated the impact on a feeling of capability and sufficiency as largely positive. In terms of stress, workload and coping with work, the results were similar to the previous one. All the results showed that teachers experienced the impacts of the increase in PAD hours on work management and coping with work more positively than the directors assessed the impact for all ECE staff.

Teachers explain the positive impact of increased PAD hours on the balance of skills and goals, as well as the feeling of capability and sufficiency. With increased

Work management and coping with work	ECE teachers (%)				ECE directors (%)			
	Positively	No effect	Negatively	In total	Positively	No effect	Negatively	In total
Balance between skills and goals	50.3	32.4	17.3	100% (N = 312)	42.0	36.0	22.0	100% (N = 100)
Feeling of capability and sufficiency	56.9	25.4	17.7	100% (N = 311)	43.1	26.5	30.4	100% (N = 102)
Stress	44.7	34.0	21.3	100% (N = 309)	27.5	34.7	37.8	100% (N = 98)
Workload	44.6	33.9	21.5	100% (N = 307)	26.3	39.4	34.3	100% (N = 99)
Coping with work	59.0	27.2	13.8	100% (N = 312)	38.4	39.4	22.2	100% (N = 99)

Table 2. ECE teachers’ and directors’ perceptions of the impact of increased PAD working hours on work management and coping with work.

PAD hours, teachers have more opportunities to develop their skills. Skills, in turn, was seen as a support to meet the demands of work, as shown by the following quote: *"There has been time to have access to documents and the law and to comply with them in own work, so responsibility has improved"* (Teacher 23).

The perceptions of directors and teachers differ when they assess the impact of the increase in PAD hours on work management and coping with work. Directors felt more negative impacts of the increase in PAD hours in all aspects of work management and coping than teachers experienced. For example, in terms of stress, according to one ECE teacher (Teacher 146), increased PAD working hours *"ease the feeling of stress at work when there is little more time to carry out tasks that are responsible, such as curricula."* On the one hand, some teachers felt that with the increased PAD hours, the expectations placed on them have increased, thereby increasing their sense of stress. Directors, on the other hand, felt that the change in working hours has increased stress throughout the staff.

ECE teachers showed that increased PAD hours have reduced the burden of their own work. Directors' views on the impact of the increase in PAD hours on the staff's workload varied; some felt that the increased PAD hours negatively impacted the workload of all staff, while others realized that the change had been positive, i.e. reduced the burden on the staff. In terms of coping with work, ECE centre directors experienced the impact of the increase in PAD working hours to be positive rather than negative. However, teachers considered their impact on coping with work to be clearly more positive than the directors.

In the qualitative data collected from teachers, better coping with work and reduced workload experienced by teachers were associated with the structure of work, that is, better manageability and feasibility of work. One teacher (127) recognizes the following:

"Now during working hours, [PAD] has been allowed to do the work, and it has reduced stress and brought a new flow to the work. I used to spend a lot of my own time because I always had pedagogical responsibility, and it seemed that the planning time was not enough for the curricula planning, preparing and evaluating activities and studying new things, etc."

Teachers also felt that a calm and concentration-supporting environment was meaningful for efficient, high-quality work. In addition, teachers describe how they are now better able to focus on children when working in a child group, and they do not need to think about planning, assessment and development tasks at the same time: *"The working day clearly consists of work in a group of children and PAD working time. When you're in a group of kids, you're just there for them, and everything else is done elsewhere"* (Teacher 274).

On the other hand, PAD hours outside teachers' child groups are seen as rather contradictory when considering the workload on the whole educator team and group of children. Teacher 15 analyzed that *"this is like a double-edged sword if we have to leave the child group at the same time we are needed in the group in the middle of the day due to the planning time."* Directors were also concerned about how the increased absence of teachers from the group affects the rest of the team's workload and exhaustion. The issue also made the directors ponder from the viewpoint of how smaller human resources and the absence of a pedagogically educated teacher from the group affect the work with children and, consequently, their safety and well-being. Director 66 even questioned PAD working hours, writing: *"Is the teacher's responsibility and discretion for children's well-being diminished at the expense of the PAD time?"*

3.3 Organization of teamwork

The impact of teachers' increased PAD hours on the organization of teamwork was examined by assessing four sections: the clarity of roles and tasks, possibilities for utilizing strengths and skills, experiences of creativity and freedom at work, and possibilities to develop and influence (Table 3).

The extra PAD hours have clarified the roles and duties of different professional groups in ECE centres. The majority of both teachers and directors felt that PAD had a positive impact on clarifying the roles and tasks of different professional groups in the work community. Qualitative data also showed that the increase in PAD hours clarified the job images of different professional groups, thus supporting the effectiveness of cooperation among the ECE centre's education teams.

Everyone knows their role and their job, which clarifies the structure of the whole day. There seems to be time for the children. And planning work is in everyone's interest. It will be up to the director to enable the PAD period. (Director 5)

In particular, directors pointed out that PAD hours clarified the role and pedagogical responsibility of teachers on the team. According to the directors, it is also important to pay attention to clarifying the tasks of other professional groups and to realize that the strengths of other team members will be utilized in the activities.

Both teachers and ECE centre directors perceived that the increased PAD hours have positively impacted the utilization of strengths and competences in the work community. Teachers and directors felt that the increase in PAD hours has supported the utilization of the skills and strengths of different professional groups at work. According to the teachers' and directors' assessments, the additional PAD hours have strengthened the experiences of creativity and freedom at work. However, almost the same number of directors expressed that the change has not affected staff creativity and freedom. The qualitative data from teachers described that opportunities to brainstorm and develop pedagogical activities had improved.

According to both respondent groups, the increase in PAD working hours has mainly had a positive impact on the possibilities of developing and influencing the work of the ECE staff. Teachers pointed out the extra hours have supported

Organization of teamwork	ECE teachers (%)				ECE directors (%)			
	Positively	No effect	Negatively	In total	Positively	No effect	Negatively	In total
Clarity of roles and tasks	51.8	30.5	17.7	100% (N = 311)	56.7	19.2	24.1	100% (N = 104)
Strengths and skills	68.5	26.4	5.1	100% (N = 311)	60.8	32.3	6.9	100% (N = 102)
Creativity and freedom at work	64.6	25.7	9.7	100% (N = 311)	44.5	43.6	11.9	100% (N = 101)
Possibilities to develop and influence	61.7	30.5	7.8	100% (N = 308)	55.0	36.0	9.0	100% (N = 100)

Table 3. Early childhood education teachers and directors' perceptions of the impact of increased PAD working hours on the organization of teamwork.

the development of both their own competence and the pedagogy of the children's group. Directors also expressed the same point of view: with more PAD hours, teachers are able to spend more time studying, evaluating and developing matters. The possibilities for development and influence for teachers were perceived to have increased because the teachers are now better able to detach from the group of children and participate in pedagogical discussion with other staff outside his or her own educator team. In particular, increased cooperation between teachers was seen as important from a professional and developmental point of view regarding pedagogy in ECE.

3.4 Atmosphere in the work community

The impacts of the increase in PAD hours on the atmosphere of work communities in ECE were approached in three sections: a sense of appreciation and trust in the work community, the emotional atmosphere of the work community and interaction and communication. The overview of the link between increased PAD hours and the atmosphere in the work community, as created in **Table 4**, showed that the increase in working hours was either seen to not have had an impact on the atmosphere of the work community or was seen as negative. However, an interesting exception of the impact on the atmosphere in the work community is that nearly half of the directors believe that increased PAD hours have positively impacted appreciation and trust in the work community. One-third of teachers also felt that the increase in PAD hours had positive effects on both appreciation and trust in the work community, as well as on interaction and communication.

Among all the elements of well-being at work studied (**Tables 1–3**), the emotional atmosphere of the work community was the only factor that both teachers and directors felt was mostly negatively affected (**Figure 1**).

Qualitative data reinforced the finding that the appreciation of work has increased: *“The work of ECE teachers has received more appreciation, which supports well-being. Teachers are allowed to plan their work; their duties have become clearer”* (Director 2). However, qualitative material showed that as the role of teacher has strengthened and appreciation has been gained, childcare nurses have begun to feel that their work is no longer appreciated. The following example shows how childcare nurses, according to the ECE director, find a resource allocated to teachers as unequal:

Atmosphere	ECE teachers (%)				ECE directors (%)			
	Positively	No effect	Negatively	In total	Positively	No effect	Negatively	In total
Appreciation and trust in the work community	34.4	47.5	18.1	100% (N = 299)	44.9	33.7	21.4	100% (N = 98)
Emotional atmosphere of the work community	20.5	34.0	45.5	100% (N = 303)	21.8	34.6	43.6	100% (N = 101)
Interaction and communication	33.9	42.4	23.7	100% (N = 304)	36.6	45.6	17.8	100% (N = 101)

Table 4. Perceptions of ECE teachers and directors about the effects of increased PAD working hours on the atmosphere in the work community.

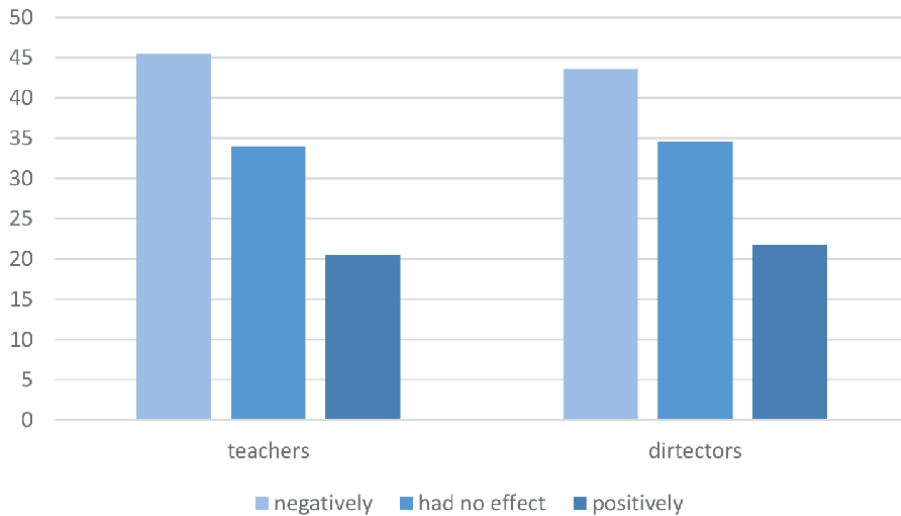


Figure 1. Perceptions of ECE professionals regarding the effects of increased PAD hours on the emotional atmosphere of the work community.

The increase in PAD time has clarified the job description of the ECE teachers, underlining the importance of pedagogical responsibility. When dealing with the changes, it should be remembered that they affect the work of all members of the work community, not just teachers. Childcare nurses said that they feel that their skills are not appreciated, and that they have to be responsible for the group very much when the teachers are planning. (Director 34)

Both groups of respondents interpreted the deterioration of the atmosphere as partly due to the fact that different professional groups have different views on the need for PAD hours and their significance. According to directors and teachers, childcare nurses in particular seem to have a negative attitude towards working hours.

It has not yet been achieved for all professional groups to see that a properly used PAD time would support the whole community. (Director 10)

Childcare nurses are embittered by the fact that ECE teachers have the right to plan. They feel it's away from them, and they're not appreciated. It affects the atmosphere of the team a lot. (Teacher 73)

This contradiction, in turn, affects teachers' feelings and consciences to use PAD hours in accordance with the law, as described in the following example: "The problem is that you can't hold it without everyone or someone in your neighborhood and own team feeling bad, which completely ruins the atmosphere, and you can't hold the whole PAD" (Teacher 67). In addition, the directors pointed out that there have also been various attitudes towards PAD working hours in ECE at different levels of administration. It has made it difficult to agree on the working time practices.

As a leader, I think I have been wondering about the negative attitude of the administration and some colleagues towards the PAD period. It has not been internalized enough, which is what evaluation and development means. (Director 6)

Despite the weakened atmosphere, the impact of increased PAD hours on interaction and communication in the work community was seen by both respondent groups (**Table 4**) as more positive than negative. However, most teachers and directors believed that the reform has not affected interaction and communication. In the qualitative material, interaction and communication were highlighted in critical comments about the non-inclusion of staff team meetings to the teachers' PAD hours.

4. Conclusion

This study examined experiences within ECE centres on how the increased PAD hours of ECE teachers have affected the well-being of ECE centre staff at work. The results showed that the increase in PAD hours has generally strengthened well-being at work in ECE. The increased PAD hours have particularly enhanced well-being at work for ECE teachers, while the change has strengthened the well-being of all ECE staff less. The results also showed that the increase in PAD hours has negatively impacted the atmosphere of the work community, that is, it has increased conflicts and experiences of inequality.

With stronger well-being at work, teachers' increased PAD hours can be seen as having had a number of positive impacts on ECE. Based on this study, the increase in PAD hours has been able to support the ability of ECE teachers to respond to the increased responsibilities and expectations assigned to them. Increased PAD hours have supported teachers' pedagogical work from two perspectives: it has strengthened their ability to carry out their work during working hours, thereby also strengthening their ability to cope with work. In addition, with the increased hours, the importance of pedagogy and pedagogical expertise in ECE have become clearer, which has also contributed to supporting teachers' work and work motivation. The previous research also showed the importance of employee well-being for the quality of work (see refs. [19–21]).

With the increase in PAD hours, the teachers' work and pedagogy are appreciated more. The increase also seems to be linked to an increase in pedagogical awareness. It has strengthened the perceptions of ECE teachers both around the importance of pedagogical work and the relevance of their own professional work in the implementation of pedagogy. PAD working hours have increased cooperation between teachers, which, in turn, had a positive impact on their well-being at work, their sense of work community and collegial peer support.

For all staff, the impact of the increase in teachers' working hours has been rather limited. However, in the entire work community, well-being factors related to work motivation have increased. Similarly, the organization of work and teamwork was seen as positive. On the other hand, the reform had a debilitating impact on the emotional atmosphere of work communities. Although the increase in PAD hours strengthened staff resources in PAD and thus positively impacted well-being at work, it has caused problems within the work community. Teachers' working hours have increased the uncertainty of other educational professional staff about their own expertise and role. This may explain the negative impact of the reform on the work atmosphere that was highlighted in the study. Teacher absences from the child groups during PAD hours place a burden on other educators from that group. Previous studies have also seen the lack of human resources as a burden on staff [26, 27].

This study revealed clear challenges in organizational development to the leadership of pedagogical planning, assessment and development, especially human resources management. The increase in PAD working hours has brought tension

into the atmosphere of the work community. The challenge of leadership is to tackle them, clarify the roles of different professional groups in practical work and strengthen pedagogical leadership to involve all actors. The relevance of the competences of different professional groups should be strengthened from the perspective of ensuring the overall development and well-being of the child. Clear roles based on competence profiles increase the functionality of the educator teams and the well-being of the staff. Good organization of ECE and the clarity of work tasks are important factors that affect well-being at work [12, 26].

The evaluation of this study must consider that directors assessed well-being at work from the perspective of the entire work community. Teachers' assessments of their own well-being at work were more positive for most factors than those of the entire staff. While it is important to include directors in this study, it can be considered a limitation to exclude other people as respondents. In any case, this study demonstrated the need to examine the impact of the change in teachers' work not only from the teachers' point of view but also from the perspectives of other employees in the work community. In this study, quantitative and qualitative data supported each other, confirming findings and providing mutually explanatory or complementary perspectives.

Author details


Johanna Heikka^{1*}, Sanni Kahila¹, Harri Pitkaniemi¹ and Eeva Hujala²

1 University of Eastern Finland, Joensuu, Finland

2 University of Tampere, Tampere, Finland

*Address all correspondence to: johanna.heikka@uef.fi

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Inclusion in Early Childhood Development Settings: A Reality or an Oasis

Joyce Mathwasa and Lwazi Sibanda

Abstract

Inclusive education within the Early Childhood Development settings has been identified as the most equitable practice for children with disabilities and is based on acknowledging it as a fundamental human right and a foundation for life-long learning for all children. Based on the concept of human rights, inclusion has been viewed as an ambiguous and unimaginable consequence of excessive promise, which does not refer to early childhood; hence, practitioners have challenges in its applicability. This chapter aims to unravel the mysteries behind inclusion in early childhood, exploring the realities of what works and what does not work to inform policy making mechanism. Literature from renowned published work that focuses extensively on various countries across continents is reviewed. Local recently published and unpublished studies that scrutinise the association between practitioner qualification and quality of the ECD centres; those that have explored the success and challenges of inclusion in ECD will be examined. It is envisaged that this chapter would come up with best practices in the implementation and assessment of inclusive education in the ECD settings that will benefit children with disabilities, their parents or caregivers, and stakeholders.

Keywords: differentiated learning, emotional disturbances, inclusive education impairment, vulnerability

1. Introduction

Globally, governments who are signatory to the Convention on the Rights of Persons with Disabilities [1] have produced several policies meant to provide equal educational opportunities to all children nationwide. As advocated through the Salamanca Statement in 1994, inclusive education is the central principle to ensuring equal educational rights for children with varied disabilities and special educational needs [2]. The principle of inclusive education has been merged into the legislation and policy in many countries and visible in numerous international organisations' statements and programmes such as the Organisation for Economic Cooperation and Development (OECD) [3, 4] the Council of the European Union Council [5], the European Commission [6], as well as the UNESCO (70). It was even incorporated into The Convention on the Rights of People with Disabilities (CRPD) [7] was more vocal on inclusivity in education. The principle of inclusivity has however over the years, lost much of its initial approach of having clear-cut

outcomes, to an ambiguous “procedure” [8] or has been vaguely defined, for example, the issue in the CRPD [7].

It entails that schooling of children, inclusive of those with severe disabilities, have admittance to regular classrooms with the assistance of suitable support. The initiative towards inclusive education is engrained within the principle of human rights, the preferment of social justice, the delivery of quality education, equality of opportunities and the right to basic education for all [9]. Such revolution in philosophy has brought about the new models of education that are more multifaceted and often entail diverse vicissitudes in the way schools function and in the expectations for teachers [10]. The principle introduced a new way of thinking turning the old one upside down. The change predestined that children’s own readiness as obsolete and only concerned with their acceptance into mainstream education as required by the drive towards what is terms of “integration”.

The analysis of practitioners’ practice and early interferences for actual identification and screening children with disabilities for designing acceptable-quality education has overshadowed much research that is predominantly associated to early childhood education [11]. In this tactic children’s learning outcomes have been adopted as indicators of quality [12], indicating the efficiency of preschool education on the progression of children socially and cognitively [13–15]. Lately, the interest of researchers has centred on examining how children’s participation influences the development of school events and architecture, viewing children’s perception as self-confident learners and debating on the need to integrate children’s perspectives in institutional organisational development [16, 17].

However, the studies undertaken by academics to scrutinise children’s partaking revealed the importance of bearing in mind the child’s voice and contribution in social situations. This idea is confirmed by Souza [18] who asserts that children can actively participate in the construction of knowledge. Notwithstanding evidence from extensive research showing competency and agency of children’s participation in creating culture of their own learning, and the preceding knowledge on instructional practice of practitioners and the interaction between children, promoting involvement of children with disabilities in inclusive environments is still a challenge that requires further research. In their previous studies Ferreira et al. [19] assert that it is essential to deliberate on the complex of human development when dealing with the development of children with disabilities in inclusive school environments. Inclusive education includes espousal of human diversity, appreciation and supporting full participation of everyone perpetuating the rights of all children and the provision of education that is free from all forms of discriminatory beliefs and attitudes [20]. This notion came from the thought-provoking statements from Dewey as early as [21], and Freire et al. in [19] who claimed education as a political act that is never neutral which required the engagement of education as social justice and democracy, with emphasis on plummeting or eradicating oppression within and beyond educational practises and organisations.

2. The concept of inclusion in early childhood development

Inclusion in Early Childhood Development (ECD) is a concept that has gained momentum in government settings and increased the zeal among educational researchers worldwide. It is a concept that has been complexly defined based on the vision. Internationally recognised definition of inclusion came from the outcome of Return to Salamanca Conference [22] which states that:

We understand inclusive education to be a process where mainstream school and early year's settings are transformed so that all children are supported to meet their academic and social potential, and which involves removing barriers in the environment, communication, curriculum, teaching, socialisation, and assessment at all levels [22].

National Association for the Education of Young Children (NAEYC), [23] also describes inclusion as,

Early childhood inclusion embodies the values, policies, and practices that support the right of every infant and young child and his or her family, regardless of ability, to participate in a broad range of activities and contexts as full members of families, communities, and society. The desired results of inclusive experiences for children with and without disabilities and their families include a sense of belonging and membership, positive social relationships and friendships, and development and learning to reach their full potential. The defining features of inclusion that can be used to identify high quality early childhood programs and services are access, participation, and supports.

Inclusion in ECD programmes signifies including children with disabilities in children's early learning setup, together with their peers who do not have any disabilities; with great expectations and purposefully promoting involvement in all learning and social activities, enabled by adapted accommodations; and by means of evidence-based services to encourage all-round (cognitive, language, communication, physical, behavioural, and social-emotional) development of friendships with peers, and increasing the sense of being in the right place. This pertains to all young children with mild and severe disabilities inclusively with those without any disabilities. According to NAEYC [23] the dream for inclusion in ECD agendas and endorsements provided in the policy statement is based on the principles and definition set forth in their joint position statement with the Council for Exceptional Children's Division for Early Childhood (DEC).

Inclusive education means that different and diverse learners are taught side by side in the same classroom, enjoy field trips, engage in extra-curricular activities, and participate in the same sporting games together. Inclusive education upholds diversity and the distinctive contributions brought by every child to the classroom. In a genuinely inclusive setup, every child enjoys the safety and acceptance with parental participation in decision-making and setting learning goals that affect them. It is essential though that school personnel are afforded the relevant training, support, suppleness, and supplies to nurture, inspire, and react to the needs of all children. For decades, children with diverse special needs were secluded in separate institutions which fostered stigmatisation.

3. The human rights' perspective on inclusion

Worldwide, governments and their citizens have come to appreciate human diversity and embrace the need to develop inclusive societies particularly in the face of increasing recognition of the adverse influences of ingrained structural inequities that undermine social unity and the gratification of human rights and freedoms. The World Declaration on Education for All in 1990 affirmed a devotion to "education for all" with explicit allusion to people with diverse disabilities, and the Salamanca Statement, that was adopted at the World Conference on Special Needs Education [24]. An inclusive society according to UNESCO [25] is a society for all, in which every individual has an active role to play. Such a society is based on

fundamental values of equity, equality, social justice, and human rights and freedoms, as well as on the principles of tolerance and embracing diversity [26].

Inclusive education is a rights-based approach that creates prospects to go beyond a charity perspective, towards social justice. As write, Inclusive education is based on the philosophy of acceptance and is about the provision a framework within which all children, irrespective of their ability, gender, language, or cultural origin, can be respected equally with admiration and afforded equal opportunities' [27]. Based on the human rights there was need for cultural and educational revolution to eradicate all forms of prejudice and discrimination of children with disabilities [28]. Hence, inclusive education is viewed as a process that transpires on a daily basis within every educational set-up and as mentioned above, requires continuing dedication and contemplation of all professionals in children's early years.

Besides recognising the rights of people with disabilities to education, Article 24.1 of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) [1] which forms the foundation of this discourse provides that:

State Parties recognise the right of persons with disabilities to education. With a view to realizing this right without discrimination and on the basis of equal opportunity, State Parties shall ensure an inclusive education system at all levels and lifelong learning.

In realising this right, Article 24.2 enforces State Parties to ensure that:

1. The full development of human potential and sense of dignity and self-worth, and the strengthening of respect for human rights, fundamental freedoms, and human diversity;
 - a. The development by persons with disabilities of their personality, talents, and creativity, as well as their mental and physical abilities, to their fullest potential;
 - b. Enabling persons with disabilities to participate effectively in a free society.
2. Persons with disabilities are not excluded from the general education system on the basis of disability.....
 - a. Persons with disabilities can access an inclusive, quality, and free primary education and secondary education on an equal basis with others in the communities in which they live.
 - b. Reasonable accommodation of the individual's requirements is provided.
 - c. Persons with disabilities receive the support required, within the general education system, to facilitate their effective education.
 - d. Effective individualised support measures are provided in environments that maximise academic and social development, consistent with the goal of full inclusion.
3. States Parties shall enable persons with disabilities to learn life and social development skills to facilitate their full and equal participation in education and as members of the community. To this end, States Parties shall take appropriate measures, including:

- a. Facilitating the learning of Braille, alternative script, augmentative, and alternative modes, means and formats of communication and orientation and mobility skills, and facilitating peer support and mentoring;
- b. Facilitating the learning of sign language and the promotion of the linguistic identity of the deaf community;
- c. Ensuring that the education of persons, and in particular children, who are blind, deaf or deafblind, is delivered in the most appropriate languages and modes and means of communication for the individual, and in environments which maximise academic and social development.

The chapter highlights essential arguments on the importance of implementing inclusive education in the best interests of the child throughout the Commonwealth based on the Convention and explores the challenges experienced in the adhering to Article 24 of the UNCRPD [29].

4. The context of early childhood development

Globally inclusive education is viewed differently by nations. For instance, in Ontario, Canada, Early Childhood Education (ECE) and intervention services are offered through health care, education, such as childcare and preschool facilities, and through social service agencies. Underwood [30] observed the challenge in understanding inclusive practice in early childhood as caused by the fragmentation of services and the funding that comes through government, private, or a mix of funding from both.

In the context of Finland and Brazil, both countries are committed to children's rights as they are signatories to the Salamanca Statement (United Nations Educational, Scientific, and Cultural Organisation [2, 31], or the Statement of the World Conference on Education for All [2], resulting in a set of inclusive reforms based on similar grounds [32–34]. Special education in these countries has been conducted in special classes or schools that turned to be a specialised service substituting for mainstream schooling. Mazzotta [35] observed that the belief in the medical perception of normality/abnormality enforced segregation of children with disabilities as a goal to specialised assistance. In the 1970s access to education became a right for all children in Finland and Brazil followed suite in 1988, with the recognition of a clear orientation of inclusive learning organised in the mainstream system [34, 36]. Following the set goals and agreements at the World Conference of Education for All (Jomtien, Thailand, 1990) and the World Conference of Education Special Needs (Salamanca, Spain, 1994), Brazil and Finland interpreted and embraced inclusive education aligning it in their national educational policies aiming for access and quality as proposed by UNESCO's [25] social justice agenda [37].

In England, children with disabilities are classified and defined as persons with special educational needs. According to Britain [38] (Children and Families Act, 2014):

1. A child or young person has special educational needs if he or she has a learning difficulty or disability which calls for special educational provision to be made for him or her.
2. A child of compulsory school age or a young person has a learning difficulty or disability if he or she—

- a. Has a significantly greater difficulty in learning than the majority of others of the same age, or
- b. Has a disability which prevents or hinders him or her from making use of facilities of a kind generally provided for others of the same age in mainstream schools.

Children with disabilities have access to learning in the mainstream schools in the United Kingdom (UK), even though there are specifically resourced and special schools, mostly for the blind and partially sighted children [39]. Parents have a choice to send their children to privately owned institutions that offer residential facilities.

There are six democratic assertions that underpin inclusive education in South Africa which state that: (a) all children and youth can learn under conducive learning circumstances and need unwavering, ongoing support; (b) there ought to be relevant support structures, ideal systems and methodologies that enable such support in the education system; (c) learners are different and the differences must be both acknowledged and respected; (d) learning does not only take place in the formal school, but also at home and in the community; (e) changes have to be made to attitudes, behaviour, teaching methods, curriculum and environment to meet the diverse and sometimes complex learning needs of all learners; and (f) all such efforts ought to be aimed at minimising barriers to learning while maximising the participation of all learners in the curriculum and culture of their educational institutions [38, 40]. Based on these assertions McConkey [41] added that inclusive education encourages 'full participation and equality' through enabling children with disabilities from obstructive family backgrounds a chance to interact with others and participate in the communal life activities. Consequently, inclusive education is a human right change agent which is used in a democratic way to understanding values that form beliefs in embracing human diversity [42, 43].

In South Africa (SA), in the United States of America (USA) as well as in the United Kingdom (UK), it is the democratic right for every child to access educational facilities that are in the vicinity of his or her home. There is a variation in SA due to limited full-service schools that can house learners with diverse disabilities and special learning needs, giving mainstream schools the leeway to refuse admission of learners with special learning needs (possibly because they feel they are inadequately equipped to offer unique learning needs to children). The other challenge is that there no clarity and step-by-step guidance to help parents choose suitable mainstream schools for their children. Without adequate education, parents cannot actively participate and select appropriate programmes and schools beneficial to their children.

Practically, the right to education in SA is not equivalent to having the right or freedom to choose an explicit school within the child's home area. Consequently, children may have the right of admission in schools within their environment, school personnel may deny them. This is a contradiction of education and human rights policies which impede the implementation of inclusive education [44]. This is a distressing fact showing that fight for education as a human rights agenda is still a far-off dream. Hence, according to Pather [45] there is need for continual policy revisits in order to fine-tune mechanisms for the implementation of inclusive education.

In Zimbabwe, inclusive education has been well-thought-out after the awareness that approaches such as integration and institutionalisation of special needs children did not yield desired outcomes [46]. The previous tactics were plagued by a plethora of implementation problems such as: lack of resources, lack of properly spelt out policies to guide practice, social consequences such as segregation and

stigmatisation of children with disabilities and the teachers' detrimental attitudes. Despite the desire and designed policies, inclusive education has not been fully embraced in Zimbabwe. Notwithstanding this development, inclusion in Zimbabwe has not been fully embraced. A minute number of children with disabilities and special educational needs in Zimbabwe have been included in special units or classes in the mainstream public schools, with the majority of them segregated in specialised institutions. Clearly, inclusivity in Zimbabwe is still a far-off dream for children with diverse disabilities and special learning needs and their parents.

5. Inclusive models

The strategies and the development of inclusive education systems in different countries are influenced by factors such as their educational policies, the political opinions, socio-economical conditions and their cultural-historical factors [4, 47, 48]. Hence, it has been observed that students with 'special educational needs' in many countries are still educated in separate classrooms according to their disability within schools or are separately grouped in so called special schools sometimes without special guidance from specifically trained teachers [49]. There is a noticeable discrepancy occurring between the philosophical and practical dedication to inclusive education in various educational systems due to a lack of collaboration between politicians, scientists and school professionals [50]. Consequently, in order to adhere to policies, schools are accepting the challenge of teaching students with diverse special needs by just integrating them within the regular classroom contexts or by simply postulating what constitutes 'good education for all children' [51].

Due to lack of clarity in the philosophical foundations of inclusive education, a commonly understood and unambiguous interpretation of what signifies 'inclusive special needs education' makes it difficult to come up with widely accepted models of inclusive education. Hence, models are designed according to the political will to prioritise inclusion, learning environment and teacher preparedness in each country.

Griffith et al. [52] developed a '3-D' Model giving emphasis to the four elements of learning which are, knowledge, aptitudes, temperaments, and emotions, that are essential to the implementation of this model. These elements were merged into a three-phase instructional structure of activities starting with the development of a personality for caring.

5.1 Phase 1-D

The main emphasis in **phase one** is to inspire students' temperaments of sociability and caring which is the cornerstone of the application process. The major element in this phase is to ensure students enhance their knowledge and develop skills to have empathetic concern and dispositions of caring for students with disabilities.

5.2 Phase 2-D

In this phase the focus is on helping students to have a better understanding of those differences that are inclined towards alienating and separating classmates from one another. Griffith et al. [52] observed that what learners know and have experience is related to the attitudes they have towards peers who are alienated because they have certain mental, social, and/or physical differences from them. It is then essential to increase the knowledge and understanding concerning those students likely to be alienated to lessen some of this interruption among peers.

5.3 Phase 3-D

The final phase of intervention in this model is skill development. There is need to develop interaction and communication skills so that learners effectively interact with their peers prone to alienation due to their disability. Skill development is essential because caring and understanding may not logically convert into their capability to communicate and interact efficiently with disabled classmates. There are some conditions that have a tendency to strain relations and hinder effective dialogue, hence the need to develop the skills that enable communication.

The introduction of inclusive education was an effort to promote social recognition of and acquaintance with children with special needs and ultimately progressively more accepting them in regular schools. However, “a one size fits all” model may not work since disability comes in various degrees with some requiring personalised attention; environments vary and the level of understanding is different sometimes based on the political will and acceptance. Nevertheless, schools should be reconstructed such that they are proficient in educating all children, with educationalists advocating for the right to education for all children in response to the basic right and a human right that every single child, despite their disability are entitled to equal treatment with human dignity, thus, the emergent of inclusive education.

6. The role of the families in inclusive education

Active parental involvement in all children’s lives cannot be downplayed as research has proved that issues of diversity are best dealt with in the family [53]. Families are very important as they are viewed as change agents in the educational process where attitudes are built, norms and standards are set [54]. It has been argued that families of children without learning difficulties or any disabilities may not be keen to let their children mix and mingle with learners with disabilities and special educational needs because of the perception that these conditions may affect their own children’s learning [55]. At the same time, informed parents who understand the actual meaning of inclusive education, have positive viewpoint, not only embrace inclusion but become advocates for it [56] and experience drives parents to ensure the improvement of children takes place and foster their personal and social development [57].

However, research has established that parents with children with disabilities and special educational needs are divided into two sets who are likely to take different positions. Some families are not keen to support the inclusion of children with disabilities in mainstream schools [58] while other families of children with SEN or disability, through research embrace inclusive education model identifying that social and emotional effects as one of the main benefits of inclusive education [59–61]. Some positive effects realised in an inclusive educational set up are that there is greater acceptance and sensitivity to individual differences from the schoolmates.

Children with disabilities and their families endure substantial barriers in accessing inclusive high-quality Early Childhood Development programmes. A substantial number of preschool children with disabilities are mostly offered education in segregated special schools isolated from their peers without disabilities [62]. Neuroscience and research has established that early years of all children’s lives are crucial in the construction of early foundations of learning and well-being essential for later success in school and in life. It is in these early years that the children’s brains need more nurturing as they develop rapidly, more so the experiences they share with their families, teachers, peers, and in their communities are influential to their development. It becomes crucial for families to expose a wide variety of rich

experiences to children with disabilities and special educational needs where they can learn through play, interacting and engaging daily with their peers with and without disabilities. It is the responsibility of parents to ensure that children with disabilities are not segregated or stigmatised so that they build self-confidence to mix and mingle freely with other children without disabilities.

7. The role of the school in inclusive education

Schools are expected to play a crucial role that ensures equitable practices in inclusive education for all school age children, yet, to this day, in spite of several well-known proclamations inclusive practices in the early years have not been as clearly correlated to an equity discourse. The Convention on the Rights of Persons with Disabilities [1] clearly identifies the right of all children to ‘access an inclusive, quality and free primary education and secondary education on an equal basis with others in the communities in which they live’ (Article 24, Section 2.b). However, reference to early childhood is silent in this right to inclusive education. In recognition of the anomaly, the Division for Early Childhood (DEC), of a US based organisation the Council for Exceptional Children (CEC) and the National Association for the Education of Young Children (NAEYC) [63], released a joint position statement that describes early childhood inclusion as:

Early childhood inclusion embodies the values, policies, and practices that support the right of every infant and young child and his or her family, regardless of ability, to participate in a broad range of activities and contexts as full members of families, communities, and society. The desired results of inclusive experiences for children with and without disabilities and their families include a sense of belonging and membership, positive social relationships and friendships, and development and learning to reach their full potential. The defining features of inclusion that can be used to identify high quality early childhood programs and services are access, participation, and supports.

In collaboration, Nutbrown and Clough [64] contend, ‘respectful educators will include all children.’ Nevertheless, the majority of early years professionals are still not sure about what inclusive involves and frequently misinterpret the concept. Evidence that comes from research suggests that inclusive education is better for everyone in that children learn and grow in ways that cannot be achieved when they are segregated institutions. Professionals in the early years need to be confident, competent, more flexible, and skilled, when dealing with inclusive education as they have the potential for positive social change including transformation for the lives of children. It is evident that the professionals in the early years play an influential role in bringing about genuine inclusion. Nevertheless, inclusion is a complicated and continuing process, that takes long a period and commitment working towards the development of a clear understanding of inclusion so that it can be implemented into practice.

A major responsibility of all professionals in the early years is to continuously reflect critically by vital engagement with inclusion through a process of examining views and practices [65]. This chapter intends to give support to the professionals and researchers in the early childhood years as they continuously mature in confidence and understanding and embark on the trek of becoming inclusive. Evidence from numerous studies show that inclusive education entails an incessant commitment to eradicating barriers that impede on the valued full participation and having children in the right place [66–68]. A critical fact to consider is that inclusive

education is not the domain of charitable ‘do-gooders’, but preferably an indispensable facet of a dynamic society. Inclusive education is not about awarding ‘special favours’, nor about modifying someone to match the obscure ‘norm’ so they can be allowed to participate in the communal activities. Inclusion, therefore, is about acceptance and recognition of every child as a valuable member of the society.

8. Preparation of teachers for inclusion in early years

Teachers are important catalysts who can ensure that the philosophical orientation to inclusive education and its practice is accepted and practised in every department of education and by all learners. The preparation of highly qualified early childhood development (ECD) teachers has gained momentum globally in the twenty-first century era [59]. The apposite training of ECD teachers influences the quality of ECD provision. Studies have shown that the quality of ECD programmes improved with better-educated teachers. The ECD teachers who had a higher educational level provided high or moderate quality in their classrooms, more appropriate practices, better instructional activities, and positive response to families. They believed in providing instructional activities that were more developmentally suitable to young learners. Furthermore, it has been found that early childhood teachers with a higher educational qualification used easy-to-follow directions and innovative and high-level activities to motivate learners. This resulted in learners developing better social, language and cognitive abilities [69]. Hence, the early childhood education teachers’ professional development should be considered as key constituent in the education of young learners.

In preparation of ECD teachers it is important to consider the philosophical approach such as inquiry-oriented teaching. Reflective inquiry accompanied with action is central to the preparation of teachers and the basis for their decision making. The level of reflectivity is a necessary element to teacher preparation and a significant aspect of quality in teacher education [65]. Accordingly, there is need for extensive training to equip the teacher to prepare ECD learners for a more structured learning. The ECD teacher should possess extensive knowledge of how young learners learn, the processes it involves and how human knowledge is structured [70].

Research studies in United States of America have indicated that a bachelor’s degree and specialised early childhood training improved teachers’ performance and the quality of early childhood programme. It was found that teachers with a bachelor’s degree were more responsive to learners and provided more activities that promoted language development and emergent literacy than did teachers without a bachelor’s degree. Teachers who had a bachelor’s degree and some additional specialised content in child development or early childhood education were found to perform better and were considered to be qualified teachers [69].

Likewise, a study conducted in Britain revealed that learners who had highly qualified teachers also had high educational and social outcomes whereas those whose teachers were paraprofessionals showed low educational and social outcomes. Thus, globally, it is widely recognised that highly qualified personnel are a vital component of ECD programmes that result in improved quality of outcomes for young learners [70]. As a result, ECD teachers that are qualified and trained would be in a position to provide quality education and care. Consequently, the ECD learners who are taught by teachers with specialised ECD training have been found to be more sociable, exhibit a developed use of language and perform at a higher level on cognitive tasks than children who are cared for by less qualified teachers [70]. It is, therefore, evident from literature that teacher preparation predicts the quality of teaching to ECD learners.

There has been some sceptics who have queried the success of the inclusive education drive since its establishment in 2001, primarily for the reason that the teachers are not adequately trained [71, 72], and the trained still do not have confidence that they have grasped the content of their training in inclusive education [30]. Consequently, there is need for teachers to engage in a continuous training to accomplish efficacy and confidence, [73] by engaging strategies that could bring about effective implementation of inclusive education. The apathy experienced in the prevalent implementation of inclusive education has increased the cynics in the current approaches of educating people to develop a conviction in inclusive education as they are not changing people towards voluntary participation in the process.

9. Challenges in inclusive education

Despite the years of implementation, barriers to inclusive education are still experienced worldwide. These barriers include inadequacies in policy and legal support, insufficient resources and facilities, lack of specialised staff, lack of effective teacher training, scarcity on pedagogical techniques, inflexible curricular, dearth of supportive leadership, and cultural attitudes.

Teachers as the main catalyst in inclusive education can be worst barricades through lack or inadequate training, their attitude and misinterpretation of policy. It is improbable that someone would intentionally aim to dehumanise people, but dehumanisation happens when some people are considered as 'other' to we and in that process 'them' and 'us' are created in which 'us' is perceived as more desirable or deemed 'better'. Thus, ensuring the success of inclusion is essential in order to understand the dehumanising practice of exclusion. However, ablism prejudice, chauvinism, classism, discrimination genderism, homophobia, and transphobia, are all central to the involvement of a process of dehumanisation. While racial segregation was earlier justified on the foundation that it was better for the 'them' (the oppressed), but concurrently preserving the superiority of the 'us' (the oppressors). Likewise, segregation that is based on impairment or 'disability' worldwide also frequently emanates from the assumption that it is better for 'them'. Dehumanisation, which is often subliminal, inadvertent, and enculturated, happens through a progression of stigmatisation.

10. Strategies for inclusive education

Successful inclusive education implementation strategies have been categorised as the school and classroom level which encompass school structure and culture, teachers, and school leadership, and policy and national level implementation strategies which involve strengthening education management information systems (EMIS), encouraging curricular flexibility, and strengthening learning outcomes and promoting inclusive societies and economies [74]. Understanding the definition of early childhood inclusion should assist in creating high expectations for all child, regardless of ability, to enable them to reach their full potential.

11. School and classroom level implementation strategies

Literature suggests that the first step in inclusive education implementation is to help schools understand their own challenges, assets, resources, value frameworks, stakeholders, and where to locate data and evidence. It is important for teachers to

have the knowledge and skills to create inclusive classrooms, as well as for school leadership to provide an inclusive and innovative environment for teachers to flourish. More sustainable inclusive education implementation would put more emphasis on inclusive pedagogy in pre-service teacher training for all teacher trainees, as well as sustained and continuous in-service development. This also positively affects teachers' attitudes towards inclusion by emphasising that it is within their professional role to include all children in their classroom and is not just the domain of specialists and special curriculum. Teachers can also be motivated to be more inclusive by providing more structured and supported expectations as to how they teach and as to what inclusive education 'looks like' in the classroom. There is evidence that inclusive teaching practices raise the achievement of all children in the classroom [74]. Furthermore, school leadership is crucial for the successful implementation of inclusive education. Thus, leaders should demonstrate positive values. Often the most inclusive and high-quality schools are those that have school leaders who lead with vision, inclusive values, motivation, autonomy, and trust in school staff [74].

12. Policy and national level implementation strategies

It is vital that there should be national policy which clearly states that inclusive education is a right for all children. Strengthening education management information systems (EMIS) is important as it helps in providing a detailed and up-to-date school and student information that will support educational systems in understanding where and when children are not being fully included [74]. It is essential to have accurate data because it assists in finance and resource distribution, to identify barriers to inclusion and 'at risk' children, raise awareness of marginalisation, and facilitate communication between national and local levels. Encouraging curricular flexibility and strengthening learning outcomes is a critical strategy in implementation of inclusive education. It is evident that an increase in the diversity and breadth of learning outcomes, coupled with an increase in the variety of means that a student can achieve these learning outcomes, will facilitate successful implementation of inclusive education [74].

Promoting inclusive societies and economies is another important strategy in implementing inclusive education. Hence, including all children in schools leads to significant national economic gains, provided that there is a continuum of inclusion that bridges the transition from school to post-school activities (higher education, vocational training, work). Inclusive education is only successful as long as there are clear opportunities to benefit from learning and apply them to post-school outcomes and is especially important in rural and low-income countries [74]. It is important therefore, to establish a system where there is shared understandings about the meaning of inclusion and the creation of a system that supports for children with disabilities and their families.

13. Methodology

Research methodology is how the researchers navigate the jungle of questions and queries to reach a conclusion. In this chapter a desk-based research that is also termed the systematic autopsy was adopted. It relies mostly on empirically researched secondary data which is collected devoid of extensive fieldwork. Preferably, published articles and data are used as important sources to the

inquiry [25]. In assembling this chapter, the researchers used information sourced from trustworthy journals, manuscripts and distinctively published articles that did not require a fieldwork survey. A desk-research is a method which is mainly developed by collecting data from existing resources while sitting at a desk. It is frequently believed to be a low-cost and effective technique when equated with field research. However, money and time are saved when researchers have the appropriate knowledge that can be applied as the benchmark of their research procedure. The other advantage to this method is that while it is economically in terms of time and money it has less bias and breach of ethics as there is no human interaction in data collection. Furthermore, in accumulating information for this chapter the researchers used knowledge related to the phenomenon from a broader global community. However, like all techniques it also has constraints, like the inability to authenticate on the stated facts, strict controls in accessing some publication that have pertinent material.

14. Discussion

Empirical studies indicate that educators understand the concept of inclusive education at ECD level as that which is entrenched in education for all learners, including those with disabilities, through institutionalisation of learner responsive pedagogy. There is evidence from stakeholders that inclusive education at ECD level facilitates implementation of equitable and quality education for all, social cohesion, social acceptance of learners with disabilities, early acculturation to live and function in mainstream societies and exposition to mainstream careers and professions. This has been revealed by the findings of the study conducted in Zimbabwe [75]. In agreement, the results of the study conducted by Adewumi and Mosito [76] in South Africa showed that some schools exhibited good practices of inclusion of learners with disabilities during the teaching and learning process despite difficult working conditions as the schools were located in remote rural areas. It came out that teachers gave learners much support as they played the role of social workers and used innovative ideas to improvise inadequate learning materials.

However, Wanjiru [77] found that in Kenya there were numerous challenges that hindered the implementation of inclusion at ECD level. It came out that teachers were not well capacitated to teach learners with diverse needs in ECD classes as they lacked sufficient knowledge and skills. This was due to inadequate pre-service or in-service training to prepare teachers for inclusive education at ECD level. The results also revealed that teachers perceived the inclusion of learners with disabilities as a burden on them as it increased their teaching workload and delayed the completion of the syllabi, hence, negatively impacting on academic performance of learners without disabilities. Similarly, in their study in Zimbabwe [78] found that ECD teachers lacked competencies to understand the needs and scope of learners with diverse needs. The results indicated that teachers could not identify traits associated with special education needs in ECD learners as they had not done inclusive education during their pre-service training.

Nonetheless, Wanjiru [77] recommends that for inclusive education to be successfully implemented at ECD level, there is need for teachers to change their attitude towards learners with diverse needs, schools should provide adapted teaching and learning materials which responds to the needs of such learners, the curriculum needs to be flexible, and infrastructure should be modified to accommodate learners with special needs.

Author details

Joyce Mathwasa^{1*} and Lwazi Sibanda²

1 Early Childhood Development School of Excellence, University of Fort Hare, East London Campus, East London, South Africa

2 Faculty of Science and Technology Education, National University of Science and Technology, Bulawayo, Zimbabwe

*Address all correspondence to: jmathwasa@ufh.ac.za; jmathwasa1@gmail.com

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Bringing Out the Best

Brittany S. Hewett

Abstract

Bringing Out the Best (BOB) is an early intervention program that provides short term, free, family-centered, and community-based services that target children in early childhood (ages 0–5). A priority goal of the program is to increase the number of children that are healthy and ready to succeed as they enter school. Through trainings and technical assistance for educators and administrators, trainings and consultation for families, and screenings and individual interventions for children, specialists, families and teachers collaboratively develop individualized plans for increasing a child's success in the classroom and at home. BOB is in its 15th year of operation under the Center for Youth, Family, and Community Partnerships at UNC Greensboro and has served over 2400 participants to date. With BOB's aim to increase the number of healthy children ready to succeed as they enter school, this chapter will emphasize that although elementary students may not be entering physical classrooms this year, the attendance for childcare centers has maintained if not increased; therefore, social and emotional learning are even more essential to the early care curriculum. This chapter will describe the previous processes in place at BOB as well as measures taken to reinvent those services during the COVID-19 pandemic.

Keywords: Social Emotional Learning, Development, Education, Early Childhood, School Readiness

1. Introduction

Social–Emotional Learning has become a topic of much conversation in early childhood and elementary school settings over the last few decades [1]; many programs have been implemented with the aim of increasing children's social and emotional competencies and much has been learned about how our social and emotional capacities can influence our educational experiences [2, 3]. And, while great strides have been made in the understanding and implementation of social emotional learning programs, school building closures, quarantining, social distancing, and virtual learning are terms that have all but encompassed the last year of our lives. As a result, much public concern has been expressed regarding children's ability to progress academically, interact socially, and regulate their emotions in this “new normal.”

Although students may or may not be entering physical classrooms this year and a return to consistent face-to-face instruction is still to be determined, the attendance for childcare centers has maintained and even increased as students enrolled in afterschool care may be attending center-based care full time. Child Care Centers across the world have remained open, have continued serving their children and families, with new, necessary, but strenuous, standard operating procedures in place. The COVID-19 pandemic has certainly brought to light how essential early

childhood education services are to the well-being of our communities and the continuity of children's development. Now more than ever, the inclusion of social and emotional learning is an essential component to the early care curriculum. This chapter will begin by exploring social and emotional learning, its influence on children's school readiness, and one specific program, Bringing Out the Best (BOB), whose implementation aims to enhance social and emotional competencies for those connected to the early childhood age range. Additionally, the chapter will explore the program's processes in place, pre-pandemic, as well as how the program has navigated the various service provision changes brought about by the pandemic.

2. The role of social emotional learning in early childhood education and its relation to school readiness

Social and Emotional Learning can be defined as the process through which we “acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions” [2]. Acquisition of these knowledge and skills are a fundamental part of children's overall development and serve well into our adult development. Additionally, such knowledge and skills contribute immensely to academic education as research has shown a number of correlated outcomes [2]. Social and Emotional learning specifically has been shown to be linked with 1) improvement in students' social and emotional skills, relationships with others, academic performance, and perceptions of their classroom and school climate, 2) a decline in students' anxiety, reduced behavior problems, and substance use, as well as 3) long-term improvements in students' prosocial behaviors and academic performance [2, 3]. Therefore, incorporating social and emotional learning curricula and content as early as possible should secure these benefits at an earlier rate.

With compelling links clearly established between social/emotional development, behavior and school success [2, 3], funds from the Office of Head Start and Child Care Bureau were allocated to create a national resource center focused on promoting the social emotional development and school readiness of young children birth to age 5. Thus, the Center on the Social and Emotional Foundations for Early Learning (CSEFEL) was born and works to disseminate important, relevant research and evidence-based practices to early childhood programs across the United States. Of note, CSEFEL promotes the use of the Pyramid Model whose base is founded on an effective workforce and systems/policies that promote and sustain the use of evidence-based practices. The next tier of the pyramid focuses on nurturing and responsive relationships, followed by high quality supportive environments. Once these foundations are in place, if children are still experiencing social and emotional challenges, the pyramid moves to suggesting targeted social emotional supports aimed to model for and equip children with skills and strategies to address the challenges they face. At the top of the pyramid lies a section for intensive interventions for children whose challenges or needs exceed what was offered in the targeted supports. This Pyramid Model aims to support the development of social emotional competence in young children and is a pivotal resource for the Early Care and Education field as they prepare children for the transition to kindergarten.

3. Meeting a community need through bringing out the best

In 2019, the North Carolina Division of Child Development and Early Education released a report which detailed that there was a total of 242,710 children being

served in 5,786 regulated childcare facilities within the state [4]. Specifically, in Guilford County, it was estimated that there were over 32,000 children birth through 5 years of age and approximately 20% of those children (6,400 out of 32,000) would be at risk for social-emotional/mental health challenges [5]. Without targeted intervention, approximately 3,200 of these children could experience negative outcomes in mental health, cognitive development, and kindergarten readiness [6, 7]. These children are at greater risk for dismissal from preschool and childcare, which further reduces their chances of being ready for kindergarten [5].

Recognizing this need earlier in their local community, Dr. Terri Shelton and other scholars from the University of North Carolina Greensboro, the Center for Youth Family and Community Partnerships, and the Guilford County community sought to create a program to address Social Emotional Learning through a multi-tiered approach. Thus, *Bringing Out the Best* (BOB) came to fruition in 2006 and has since served the Guilford County community for 15 years. This program provides short term, free, family-centered, individually tailored, and community-based services that target children in early childhood (ages 0–5). The goal of this program is to increase the number of children in Guilford County that are healthy and ready to succeed as they enter school.

In the scope of this work, specialists enter into a variety of early childhood education settings (private and community centers, NC Pre-Ks, family childcare homes, etc.), community locations, as well as children's homes to provide interventions ensuring that they bring out the best in every child's behavior and address a multitude of individualized needs. BOB exemplifies family-centered and community-based services as the program as a whole strives to build relationships with each child, family and teacher/program that specialists work alongside. Specialists take time to get to know the clients and meet them where they are, wherever that may be. Specialists work closely and collaboratively with children's families and childcare setting to develop goals that will build upon and hone the child's current skills (as well as the teacher/family's) while addressing areas for further work. Specialists develop strategies and interventions that align well with those goals and that teachers/families are able to implement. Specialists often re-evaluate and re-assess to determine if those originally agreed upon goals have been reached and if new goals have developed. Most cases involve a tailored, consultative approach matching strategies with the specific referral question and increasing the capacity of families and/or providers/teachers to implement independently.

These services are rendered on a referral basis and children can be referred through a variety of sources whether it be their parent/guardian, teacher, childcare director, social worker or pediatrician. Children are referred to *Bringing Out the Best* for a variety of reasons, but the most common referrals are based upon emotion regulation concerns expressed by teachers/parents, followed by a close second of exhibiting aggression. As noted previously, social/emotional development and behavior and school readiness are intricately linked. Thus, while the overarching goal of the program focuses on children's school readiness, program administration and specialists are aware that much goes into the process of ensuring children are happy and ready to succeed as they embark upon kindergarten entry. Therefore, there are a number of additional goals that the program strives to achieve. With the aforementioned referral needs in mind, primary program aims are to 1) increase the capacity of providers/teachers and families to identify and address children's needs, 2) lay the foundation to strengthen children's social emotional competence, 3) increase kindergarten readiness, and 4) enhance the quality of the education and care that children receive.

3.1 Increasing caregiver competencies and capacities

Both research and personal practice have implicated the vital roles that teachers and families play in a formative span of children's development [8]. Cosford and

Draper [9] eloquently describe the similarities within the roles of teachers and families as: “both carry the expectation of concern for and commitment to fostering the development of children ...” (p. 348). Thus, building upon the competencies and capacity of educators and families is an essential component to the linkage between children’s well-being and learning [8]. As the goal of Bringing Out the Best is to increase the number of children in Guilford County that are healthy and ready to succeed as they enter kindergarten, through a holistic and strength-based approach that is culturally responsive, specialists build the competencies of the child and increase the capacity of their families and their teachers through classroom-based technical assistance, center and family-focused training workshops, targeted short-term home visiting, and referrals to other community supports and services so that competencies and capacity are built across both the home and center environments.

Activities encompassed within the specific services provided include that specialists, families and teachers work collaboratively to develop individualized plans for increasing a child’s success in the classroom and in the home. Bringing Out the Best (BOB) uses both evidence-based and evidence-informed strategies to guide the framework for service provision. BOB uses an array of evidence-based/evidence-informed (EB/EI) practices and strategies to support the social emotional development of young children.

Further, through a consultation/coaching model based on the Evidence Based Practice Pyramid Model and techniques from Substance Abuse and Mental Health Services Association’s Center for Excellence for Infant and Early Childhood Mental Health Consultation [5], specialists are able to focus special attention on building upon and improving the capacities of children’s caregivers in order to support their children’s social emotional development. Specifically, these strategies inform the way they approach technical assistance, coaching/consultation, and develop specific child, provider/teacher, and family strategies and interventions.

Through intentional processes and practices such as those described above, the adults in children’s lives then demonstrate an increased capacity to identify and address children’s needs in the classroom and at home, ultimately reducing behavioral challenges. Additionally, when caregivers understand children’s social-emotional/developmental needs and use evidence-based strategies to address behavioral challenges, children who have or are at risk for social-emotional or developmental challenges will be supported in their emotional, social, and cognitive development and will be more likely to succeed in kindergarten.

4. Previous processes in place at BOB

The program is within its 15th year of service and has served over 2400 participants to date. Prior to the onset of COVID-19, approximately 150 children were referred to BOB annually and approximately 120 of those children’s families elected to receive services. Throughout those 15 years of service and considerable caseload, the program has modified its service provision since its original development through a number of means to improve the quality of those services. Specifically, and most recently, prior to the onset of COVID-19 in the United States, BOB was involved in a continuous quality improvement (CQI) process which modified the Program’s process map of how services are provided (see Appendix 1). Of note, one of the most fundamental changes implemented through this CQI process required more teacher/provider involvement and collaboration throughout the development of strategies and goal planning. This was made possible through more effective

communication means and time management practices to ensure providers were able to be present and involved in the process. In the past, specialists may not have been able to meet with teachers outside of the classroom, or while teachers were not responsible for the supervision of children. With this new piece of the process map in place, in order to receive the services of the program, center administrators would need to ensure that teachers were able to meet outside of the classroom during their working hours. This would ensure teachers would be able to provide more insight regarding children's needs or behavior to the specialists, play an integral role in the development of appropriate strategies to address children's needs as well as provide honest thoughts and feedback regarding their implementation of those strategies, while not being pulled in different directions with competing responsibilities.

5. Measures taken to reinvent those services during the COVID-19 pandemic

Amidst the ongoing pandemic, the Bringing Out the Best program staff have been intentional and methodical in their thinking of ways to still provide their much needed and sought-after services to the Guilford County community (see Appendix 2). Although the Center for Disease Control has issued specific guidelines, and additional stipulations have been put in place by the Governor of the State of North Carolina, and further, as well as child care administration policies that limit access to child care centers in order to slow the spread of COVID-19, the BOB team has managed to maintain their caseloads by implementing options for virtual visits via video conferencing software (i.e., Zoom, Google Hangouts), phone consultation, and providing materials and interventions via curbside service at the program's location as well as dropping off materials to the child care center/homes of clients. Additionally, the program was awarded additional grant funding by a local initiative focused on children's school readiness to purchase additional software to reinvent their service provision. This particular software promotes true reflection for teachers/providers as they can securely view video recordings of their classroom experiences throughout the day for self-reflection, share recordings with a specialist for discussion and soliciting feedback, and/or share with an administrator/coach for evaluation purposes [10].

Additionally, in terms of training/family education, the BOB program staff have altered this element of their work to accommodate virtual learning. Staff members have created information rich, engaging, and thought-provoking presentations that are available to the public through their website (<https://bringingoutthebest.uncg.edu/>). The staff have also intensified their social media presence to multiple platforms to provide tips and/or resources to families and care providers multiple times per week. They have collaborated with a variety of community partners to provide easily accessible and digestible information related to children's development, their behavior, and how to answer children's questions about the pandemic and its effects.

As uncertainty of what the future will entail still lingers, the BOB program staff is still striving to achieve the primary program aims of: 1) increasing the capacity of providers/teachers and families to identify and address children's needs, 2) laying the foundation to strengthen children's social emotional competence, 3) increasing kindergarten readiness, and 4) enhancing the quality of the education and care that children receive. Although the elements of provision have changed drastically, the program staff are resilient and dedicated to the children, families and childcare

providers of Guilford County. They continue to contribute in creative ways to the children's successful entrances to kindergarten and beyond.

6. Conclusions

In conclusion, Social Emotional Learning is a crucial element to children's classroom experiences and overall development. Research has continuously shown how this construct is related to children's emotional well-being and their academic outcomes. This chapter describes, in depth, a program situated in the Southeastern United States that focuses on children's social-emotional development and its connection to their school readiness in early childhood education settings.

Acknowledgements

The author would like to acknowledge the Creator of Bringing Out the Best: Dr. Terri Shelton, and the Staff of the Bringing Out the Best program for their willingness to share about the work they do to support children, families, and early educators in vital areas of children's development. Center Director: Dr. Christine Murray, Program Director: Janet Howard, Assistant Program Director: Leslie Alexander, Program Specialists: Courtney Barrett, Joy Herrera, and Danita Washington, and Administrative Assistant: Debra Fortune. In addition, the author would like to acknowledge both the Guilford Partnership for Children and the Cemala Foundation for their generous funding to ensure the work of Bringing Out the Best continues during these trying times.

For more information regarding the program, implementation or opportunities for expansion to your area, please contact Center Director, Dr., Christine Murray at cemurray@uncg.edu or visit the program website at <https://bringingoutthebest.uncg.edu/>

Conflict of interest

The authors declare no conflict of interest.

Appendix 1: Amended for Publication BOB Case Management Process Narrative

General Process – All Referrals

Step	Description
Receive Referral	<ul style="list-style-type: none">Information-gatheringMake outside referrals as needed
Paperwork Initiated	<ul style="list-style-type: none">Paperwork sent to caregiver
Referral Accepted	<ul style="list-style-type: none">Paperwork received
Referral Assigned to Appropriate Service	<ul style="list-style-type: none">Program Director assigns to appropriate services:<ul style="list-style-type: none">For Child Referrals, see “Process A”For Classroom Referrals, see “Process B”For Home-Visiting Referrals, see “Process C”

Process A: Child Referrals

Step	Description
Initial Observation	<ul style="list-style-type: none"> Gather data
Waitlist	<ul style="list-style-type: none"> High-alert cases rise to top Waitlist prioritized by date paperwork received and need
Assignment to Specialist	<ul style="list-style-type: none"> Assignment depends on who is available, whether the child/family is Spanish-speaking, and how other cases are assigned (i.e. seek to avoid two specialists in one classroom)
Initial Classroom Visit	<ul style="list-style-type: none"> Complete introductions Observe activities Teacher consultation
Visit 2	<ul style="list-style-type: none"> Action planning Seek Clarification
Visits 3+	<ul style="list-style-type: none"> Progress check Revise action plan as needed
Final Observation	<ul style="list-style-type: none"> Post-Intervention assessment
Close Case	<ul style="list-style-type: none"> Case is closed when either <ul style="list-style-type: none"> Progress is achieved Specialist determines that BOB services are not needed and/or not appropriate for the situation Child does not respond to interventions Noncompliance by adults Family circumstances lead to discontinuation of services

Process B: Classroom Referrals

Step	Description
Initial Observation	<ul style="list-style-type: none"> Gather Data
Provide Feedback	<ul style="list-style-type: none"> Meet with Director to share feedback from initial observation
Second Visit	<ul style="list-style-type: none"> Observe classroom Action Planning
Additional Visits (as needed)	<ul style="list-style-type: none"> Scheduled based on need
Close Case	<ul style="list-style-type: none"> Case is closed when: <ul style="list-style-type: none"> Target child is picked up/assigned to a specialist Teacher decides help is not needed

Process C: Home Visiting Referrals

Step	Description
Initial contact/ visit	<ul style="list-style-type: none"> Introduction Initial interview and observation
Follow up	<ul style="list-style-type: none"> Action Planning
Additional Visits	<ul style="list-style-type: none"> Progress Check Review action plan, change as needed Seek Clarification as needed
Close Case	<ul style="list-style-type: none"> Case is closed when either

<i>Process C: Home Visiting Referrals</i>			
Step	Description		
	<ul style="list-style-type: none"> o Progress is achieved o Specialist determines that BOB services are not needed and/or not appropriate for the situation o Child does not respond to interventions o Noncompliance by adults o Family circumstances lead to discontinuation of services 		
Deliverable/ service/activity	Visits start back in one month	Visits start back end of summer	No visits until 2021
Waitlist	<ul style="list-style-type: none"> • Call parent to determine status • If no response, call center (is center open?) • Is child returning to center? • Possibly limited visits for children entering kindergarten 	<ul style="list-style-type: none"> • Call parent to determine status • If no response, call center (is center open?) • Is child returning to center? • Children entering kindergarten will be closed 	<ul style="list-style-type: none"> • Call parent to determine status • If no response, call center (is center open?) • Is child returning to center? • Children entering kindergarten will be closed
Referrals			
Current case load	<ul style="list-style-type: none"> • Call parent to determine status; if family is unresponsive after a period of time, send letter giving deadline. • If no response, call center (is center open?) • Is center open for the summer? • Continue remote or in-person support for children at home if desired (how often?); • How long is child at home? • How long do we wait for child to return to school? (case by case), should there be a maximum period that we can wait? • Adjustment period after returning to school • Can we drop off tip sheets, handout, interventions if centers are open, but not allowing visitors? 	<ul style="list-style-type: none"> • Call parent to determine status • If no response, call center (is center open?) • Continue remote support for children at home if desired (how often?) • How long is child at home? • How long do we wait for child to return to school? • Adjustment period after returning to school • Can we drop off tip sheets, handout, interventions if centers are open, but not allowing visitors? 	<ul style="list-style-type: none"> • Call parent to determine status • If no response, call center (is center open?) • Continue remote support for children at home if desired (how often?) • How long is child at home? • How long do we wait for child to return to school? • Adjustment period after returning to school • Can we drop off tip sheets, handout, interventions if centers are open, but not allowing visitors?
Non-client consultation (family)	<ul style="list-style-type: none"> • Continue for 3 consults or until no longer needed (whichever comes first) 	<ul style="list-style-type: none"> • Continue for 3 consults or until no longer needed (whichever comes first) 	<ul style="list-style-type: none"> • Continue for 3 consults or until no longer needed (whichever comes first)
Non-client consultation (teacher - working remotely)	<ul style="list-style-type: none"> • Continue for 3 consults or until no longer needed (whichever comes first) 	<ul style="list-style-type: none"> • Continue for 3 consults or until no longer needed (whichever comes first) 	<ul style="list-style-type: none"> • Continue for 3 consults or until no longer needed (whichever comes first)

Deliverable/ service/activity	Visits start back in one month	Visits start back end of summer	No visits until 2021
Non-client consultation (teacher - working in center)	<ul style="list-style-type: none"> • What kind of support is needed? 3 consults 	<ul style="list-style-type: none"> • What kind of support is needed? 3 consults 	<ul style="list-style-type: none"> • What kind of support is needed? 3 consults
Parent training	<ul style="list-style-type: none"> • Schedule seminars? (in-person) • Continuously assess needs 	<ul style="list-style-type: none"> • Schedule seminars? (in-person) • Continuously assess needs 	<ul style="list-style-type: none"> • Schedule seminars? • Continuously assess needs
Teacher training	<ul style="list-style-type: none"> • Develop trainings for 20–21 fiscal year • Continuously assess needs 	<ul style="list-style-type: none"> • Develop trainings for 20–21 fiscal year • Schedule in-person trainings; market trainings • Continuously assess needs • Continue virtual trainings 	<ul style="list-style-type: none"> • In-person trainings will depend on guidance from the CDC on group gatherings • Continue virtual trainings • Continuously assess needs
Community family support	<ul style="list-style-type: none"> • Continue to reach out through social media • Offer virtual support group? 	<ul style="list-style-type: none"> • Continue to reach out through social media • Offer virtual support group? 	<ul style="list-style-type: none"> • Continue to reach out through social media • Offer virtual support group?
Community teacher support	<ul style="list-style-type: none"> • Continue to reach out through social media • Offer virtual support group? 	<ul style="list-style-type: none"> • Continue to reach out through social media • Offer virtual support group? 	<ul style="list-style-type: none"> • Continue to reach out through social media • Offer virtual support group?
BOB team support	<ul style="list-style-type: none"> • What support is needed in the short term? • Support will be different for seasoned team members vs. new team members 		
BOB projects (if office opens before community visits resume)	<ul style="list-style-type: none"> • Maker space • Lending library • Making interventions • Continue to add to resource files • Continue professional development 		

Notes: This is a moving target. Federal, state, and local directives are constantly changing. We must be able to adapt quickly in response to community needs, changing restrictions and guidelines, and capacity to meet the needs under the restrictions of our funding structure.

Author details

Brittany S. Hewett
University of North Carolina Greensboro, Greensboro, NC, USA

*Address all correspondence to: bsh011189@gmail.com

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Preschoolers Learning by Playing with Technology

Francesca Granone and Elin Kirsti Lie Reikerås

Abstract

In an evolving world, where both adults and children continuously have to adapt to different and unexpected situations, the need to develop strong problem-solving skills from early years is evident. In addition, recent events such as COVID-19 that have led schools to close have highlighted the parent's role in supporting learning. Technology should be considered a useful tool for communication and learning, both in-home and in preschool. A possible approach to enhance problem-solving skills is to play with technological devices together. This chapter results from a series of considerations on playful programming-based home learning experiences with tactile elements for preschool children. The text presents a qualitative analysis of children's learning of problem-solving skills enhanced by this activity as well as mathematics and language. The children use the device as part of their free play. In the state of this play, the children in our examples show happiness and a form of flow that can remind of what is found in mindfulness. The findings are discussed in light of related theories on play and problem-solving. Some practical advice for teachers and parents on how to set theory into practice is included.

Keywords: problem-solving, play with technological devices, free play and flow, preschool children, mathematics, language, parents' and teachers' role

1. Introduction

Play can be considered a fundamental activity regarding emotional, social and cognitive development, and learning for preschool children [1]. Many studies [2] have shown that play should be considered a preferential channel for stimulating children's skills and competences. Samuelsson and Johansson [3] noted that play and learning are dimensions that stimulate each other and should be viewed as an indivisible entirety [4].

Among several types of play, play with toys in which technologies are involved can be considered important as stimuli for 21st-century skills and increasingly important for future society [5]. Play with technology is found to be real play for children [6]. However, the relationship between child-child and child-adult care has to be sufficiently stimulated [7].

Recent studies show that introducing the concept of computational learning (understood as the research area that studies the design of machine learning algorithms to determine what sorts of problems are "learnable" [8]) already in preschool age allows children to develop different ways of thinking about problems and solutions. This approach stimulates the understanding of spatial concepts, reasoning skills and, above all, problem-solving skills [9].

The examples in this chapter are structured around the results of a qualitative study conducted for two months in the home environment during the lockdown that followed the COVID-19 pandemic. A descriptive analysis of video-recorded play situations between Magnus (five years and nine months) and Harald (four years and two months) was conducted using a multimodal approach. As a result, we present ideas that can be performed to enhance important skills for preschool children (problem-solving ability, nonverbal communication, linguistic ability, and self-confidence) by stimulating computational thinking with a playful programming-based toy. The robot used can be programmed by puzzling tiles together with arrows (for a more detailed description, see [10]).

2. Play and learning in preschool age

2.1 “The robot doesn’t understand anything!”: an example of how to help children understand and develop computational thinking

Harald plays with a programming-based robot with tactile elements. The toy is composed of a series of tactile blocks consisting of arrows that indicate directions. The robot moves on the path by reading the commands as it passes over these blocks. Harald builds a path (**Figure 1**). He then puts the robot at the starting point. The arrows are not connected well, and the robot stops. When Harald places the robot on the orange arrow instead of on the green arrow, the robot rotates, losing the direction of the path. Harald looks annoyed. Harald tries again, but the robot does the same. Harald sits in silence. He then builds a new path with just green arrows (forward direction). Harald seems satisfied because the robot follows the path (**Figure 2**).

In this example, the children develop thinking skills by playing with tactile arrows to build a path for the robot (programming/coding). Such thinking skills support learning and understanding and are often called computational thinking skills [11].



Figure 1.
Harald builds a path.



Figure 2.
Harald builds a new path with just green arrows.

The definition comes from Wing ([12], p.1):

“... the thought processes involved in formulating problems and their solutions so that the solutions are represented in a form that can be effectively carried out by an information-processing agent”.

The development of operational thinking is not only applied in computer programming but can also be used in mathematics to enhance children’s logical concepts, problem-solving skills, and deduction ability [13], as seen in Harald’s play.

Selby and Woolard [14] identified five main themes that define computational thinking processes. The first is defined as the ability to think algorithmically, and it is considered the starting point for the whole process, which means identifying a way of getting to a solution through a clear definition of the steps and thinking in terms of sequences and rules. The second is described as the ability to think in terms of decomposition, which is clearly important. This step means that a way of thinking about artefacts in terms of their component parts has to be enhanced. The third can be described as the ability to think in generalisations identifying and making use of patterns. It is a method of quickly solving new problems based on previous solutions to problems and building on prior experience based on an analogical approach. The fourth is called the ability to think in abstractions, choosing good representations, which indicates the process of making an artefact more understandable, for example, reducing complexity by removing unnecessary detail. The fifth is the ability to think in terms of evaluation, which identifies a process of ensuring that a solution is good, for example, assessing whether an artefact does the right thing.

In Harald’s play, it is possible to identify 4 out of 5 themes that are considered computational thinking.

Harald defines the steps (he wants to let the robot go from one point to another, and he builds the path). He thinks in terms of decomposition (he chooses the arrows). He thinks in abstraction (by reducing the path’s complexity when the robot shows problems). Finally, he thinks in terms of evaluation (he is satisfied when the robot understands).

However, this example shows that Harald seems frustrated when the robot does not respond, as Harald has decided. Such play can be sustained by the mediation of

teachers, parents, other adults or children by helping the child start from a working solution to implement a more complex solution (reasoning based on the concept of analogy), which is particularly important [15, 16].

2.2 “I think that you should try again”: how the adult enriches play

The adult is more present in the next example and uses a problem-based learning design [17], helping the child set his own learning goals through a problem scene.

Adult: “Can you now build a more complicated path? I think that you should try again”. Harald is not so sure. He sits in silence, but after a while, he agrees. He destroys the path, and he builds a new path, which in any case includes a blue arrow. Harald traces the path with fingers before and after letting the robot go. It works. Harald is extremely satisfied (**Figure 3**).

In accordance with a problem-based learning design, the child explores the learning solution by himself. Usually, the child should report his own learning conclusions, but here he communicates his results with nonverbal language (he clearly shows his satisfaction). In this example, however, a child’s reflection about the results is still missing.

The play that Harald started was initiated by him. This is usually called free play, and it has been associated with a state of flow [18]. This is a type of play where children are allowed to play without any direct interference from adults, such as teachers or parents [17]. Free play is often said to be the opposite of guided play, where the adult sets the rules and initiates play [19].

Synodi [19] also mentions a third type of play: mutually directed play. In this type of play, adults become involved in children’s free play in a non-disruptive manner [20], as the adult does in Harald’s play. As a co-player, the adult enriches the play, and the teacher thus scaffolds the children’s play and learning [18, 19].



Figure 3.
Harald builds a more complicated path.

2.3 “Do I have to put an arrow here?”: How to use coding to enhance mathematics knowledge and problem-solving skills

As described in the examples above, coding activities are not only important to sustain fundamental skills for computer science but also for developing the children’s critical and creative thinking skills [21]. Studies indicate that students also learn a range of mathematical concepts during the process of learning how to code [22], especially if they can be facilitated in learning by using visual elements [23].

Magnus and Harald play with a robot. They decide that the robot should move to reach a dinosaur.

Magnus: “I arrange the arrows forward, on that side and that side” (moving hands to show that he means right and left, without giving a comprehensible explanation in any case). Magnus puts a sequence of arrows on the carpet.

Adult: “Can you tell me if the robot should go right or left?”

Magnus: “Do I have to put an arrow here, on this side?”

Adult: “What does this direction mean?”

Harald intervenes by placing an arrow indicating the correct left turn (orange arrow) instead of the right turn (blue arrow) that Magnus was trying to place.

Magnus then sets the arrow that he had in his hand to continue the path in the correct direction. They continue working together and then they verify the path with the robot (**Figure 4**).

Magnus: “Can we prepare a new one? Can we do it this way?” (Magnus traces a new road pointing with a finger).

In this example, children identify the problem, they decide where to go and place a dinosaur at this goal. Subsequently choose the arrows because they understand what they need to do. They then study, choose and try a solution. At the end, they define a new problem (“Can we prepare a new one?”). They build and try, but they need the adult’s help to review and reflect on the meaning of their actions and decisions. Following Polya’s definition of the problem-solving process, this can be considered as built with 4 sequential steps [24]. The first step is an input phase, in which a problem is defined, and an attempt is made to understand what is needed to solve it. The second step can be identified as a processing phase, in which alternatives are generated and evaluated, and a solution is selected. The third is an output phase that includes planning for and implementing the solution. The fourth is called



Figure 4.
Magnus and Harald decide that the robot should move to reach a dinosaur.

a review phase, in which the solution is evaluated, and modifications are made if necessary.

The literature has highlighted tendencies towards collaboration and problem-solving by using coding tools with preschool children [5]. In fact, Magnus and Harald explained how they think, both with and without verbal language. Problem-solving skills that the coding process solicits can enhance mathematical skills.

Research shows that children undergo extensive mathematics development over the first five years of life [25, 26]. There are many opportunities for teachers and parents to support their mathematical learning, using formal and informal situations as play-based activities or supporting children's free play [4, 27–30], as described in the last section.

When Magnus and Harald are involved in playful programming-based home learning experiences with tactile elements, they use mathematical skills. These skills are spatial orientation skills (to understand where the robot must go), measurement skills (how far the robot must travel to arrive at the point established as a finish line), and counting skills (how many arrows the child has to place in sequence to cover a certain distance). Understanding different dimensions in space is also stimulated, especially through the sense of touch, because the child experiences the different dimensions of the tactile elements (which can be considered almost two-dimensional) and the robot's dimensions (similar to a square-based prism).

In this example, Magnus and Harald struggle to find words to describe what happens to the robot, although they have well-developed linguistic skills.

The adult's approach is to then stimulate the verbal explanation to allow them to reflect on what has been done. Here, a game-based learning design is proposed [13]. Using this method, the adult asks Magnus and Harald to set up their own goals and to create ideas to achieve them. Games include many problem-solving characteristics because children must face an unknown outcome, multiple paths to a goal, and construction of a problem context to reach the goal by collaborative behaviour. A very useful learning aspect can be stimulated through the dialogue between adult and child or between child and peers. From a dialogue on what has been done to encouraging the explanation of robot orientation (be it verbal or nonverbal), the adult helps Magnus and Harald reflect on their actions (metacognition). Thus, the children can reinforce their understanding [31].

2.4 “The robot goes blablabla”: How to help children express themselves

While the robot moves, Harald hits the carpet, knocking the dinosaur away and causing the robot to go slightly off the road. Magnus places the dinosaur and robot again. The robot is placed on an orange arrow (indicating a right turn) instead of a green arrow (indicating forward). Instead of following the marked path, the robot turns to its right and then goes back on the path (**Figure 5**).

Magnus: “Noooooooooooo”.

Harald: (laughing): “Noooooooooooo”.

Adult: “Why is the robot doing this?”

Magnus (laughing) “Maybe because this goes this way.” Magnus indicates the fact that the orange arrow indicates the right turn, which causes the turn, not the direction straight ahead.

Magnus (laughing): “But what does the robot do?”

Adult: “So what does the robot do sometimes?”

Magnus: “But that's because this ... (pointing to the turning arrow) ... this does so (pointing with the finger in the direction of the turn).”

The adult reproduces the same gestures done by Magnus. “What does it mean? What are you trying to say? Can you explain it? Try to analyse each step.”



Figure 5.
Instead of following the marked path, the robot turns to its right and then goes back on the path.

Magnus: “The robot is on the orange arrow”.

Adult: “Yes, and what happens?”

Magnus: “The robot goes wrong”.

Adult: “Why?”

Magnus: “The robot turns”.

Adult: “What does the orange arrow says?”

Magnus: “Turn”.

Harald: “Turn” (he repeats thoughtfully).

Adult: “And what does the robot do?”

Magnus: “It turns. It turns? It turns! Therefore, it works!”

Harald: “Turn” (he repeats, thoughtfully).

Magnus: “I can explain you...”.

In this example, Magnus and Harald make meaning beyond language by using speech, gesture, and gaze to be understood. This multimodal approach [32] deemphasizes the centrality of language and considers multiple “modes” of communication.

The collaborative interaction was mediated through spoken language, actions and artefacts, as Magnus, Harald, and the adult sat together on the floor with the robot and tactile arrows. The adult’s behaviour was a mediational approach aimed at sustaining and bringing the activity to a successful conclusion. This sustained the children in their process of finding the knowledge required for effective expression of their thoughts [32].

Adopting an encouraging approach, the adult helps the children reduce the task to a series of achievable goals and describes each command instead of the whole path.

Inspired by the dinosaur that Magnus and Harald used in their play, the adult could have enriched the play relating the situation to a fantasy world where the dinosaur was a living creature. In this way, the children’s imagination would be involved more strongly. Following the research, one of the most powerful tools for learning language could be storytelling [10, 13], for example, by using dinosaurs and robots.

2.5 “Do you find any problem?”: how to help children understand that a mistake is just a sign that something needs to be changed for better learning

In the learning process, an important role is played by mistakes. Errors should be considered milestones in educational praxis because every time that a child is

wrong, he can find the possibility to reflect, understand and learn [33]. However, this does not happen, and mistakes are often related to a sense of frustration caused by the impossibility of modifying a decision.

The programming approach instead shows that a solution can be changed just by modifying one or more commands. In this condition, the experience of uncertainty does not have a negative impact; instead, it plays an important role in content learning and interaction during collaborative learning tasks [34]. This interaction can occur between peers or between children and adults.

Adult: “Can the robot understand what you do? The robot does what you think or what you say with the arrows?”

Harald: “He reads the arrows”.

Adult: “Can you follow the path with your finger? Do you find any problem?”

Harald points with his finger from the starting point and follows the path.

When two arrows point in the same direction, he stops, uncertain about what to do (Figure 6).

Harald verifies with the robot that it is impossible to follow the path. The robot takes the wrong direction at the same point. Harald stops and thinks. After he destroys the path, he builds a new path, which in any case includes an orange arrow. Harald traces the path with fingers before and after with the robot. The robot completes the path. Harald is extremely satisfied.

The approach presented by the adult in this example is related to systematic computational learning theory [13]. In this method, the adult precisely formulates and addresses questions regarding the performance of different learning algorithms. This helps the child reflect on each command, identify the error and find a solution.

This consequence is a decrease in frustration and an increase in the sense of satisfaction when the goal is achieved, as shown in the example.



Figure 6.
Harald points with his finger from the starting point and follows the path.

Another reflection about errors and uncertainty leads to consideration. In some situations, creative problem solving may require intentional uncertainty generation to investigate new ideas, followed by uncertainty reduction during the process of identifying the best option. When the child is not playing alone but is involved in a group where effective collaborative brainstorming is needed, a strategy could be to sustain task uncertainty to increase the communication necessary to find a solution and reach the goal [35, 36].

This approach to error allows an increase in the joyful part of playing.

3. Conclusions

The play situations that Magnus and Harald experience are amazing and engaging, but they are also an opportunity to learn different skills, such as the understanding of mathematical concepts and problem-solving. In addition, children can enhance their verbal skills, while self-esteem and confidence are indirectly reinforced.

Play involves elements of joy, satisfaction and reward, excitement and pleasure, freedom and self-confidence [37]. When the child plays, he enters his own world and experiences happiness; this condition is defined as flow [38]. The child feels outside time and space, and his mind floats away without thinking about anything other than play. The child finds joy, excitement, and a driving force to master challenges. The “flow experience” helps the child feel confident, and in this way, he increases his own self-awareness [37, 39]. Early research showed that preschoolers engaged in exploration in settings where ‘free-flow’ play characterised practice [18]. In alignment with this aspect, our experiences presented in this chapter show that children who experience “free-flow” increase their self-esteem and discover the freedom to experiment with non-conventional solutions.

An important role is played by the adult, teacher, or parent. Adults have the important role of supporting children in their learning through a mediated learning approach, regardless of the type of teaching method they intend to use in presenting activities to children. This approach implies that adults do not provide predefined answers to children but support them in their process of research and construction of their own learning.

Acknowledgements

We would like to thank the children and their parents for taking part in this research project.

Author details

Francesca Granone* and Elin Kirsti Lie Reikerås
University of Stavanger, Stavanger, Norway

*Address all correspondence to: francesca.granone@uis.no

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*Edited by Olga María Alegre de la Rosa,
Luis Miguel Villar Angulo and Carla Giambrone*

This book reviews literature and research linked to early childhood education and care (ECEC). This educational level is fundamental for acquiring key competencies for school entry and establishing the physical, cognitive, and emotional bases for lifelong learning. Preschool education should promote student autonomy as the ability of a child to act on their own free will because it is a critical part of learning for all children. When a child has autonomy, it helps build confidence for responding to the demands of the family, self-esteem values linked to collaboration tasks, and independence in selecting reasonable choices.

Published in London, UK

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