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Contemporary Perspective on Child Psychology and Education

Edited by Şenay Çetinkaya

CONTEMPORARY PERSPECTIVE ON CHILD PSYCHOLOGY AND EDUCATION

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Notice

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Meet the editor

Associate Professor Şenay Çetinkaya was born in Balıkesir, Turkey, in 1967. She has completed her bachelor of nursing, master's degree, and PhD degree in Ege University. In 1988, she was employed as a nurse in ICU at the cardiovascular surgery clinic in Ege University, at the medical faculty hospital. In the mean time, she completed her postgraduate (1991) and PhD (1999) on pediatric nursing. She was employed at the Health Colleges of Inönü (1996–2000), Selçuk (2000–2004), and Ege (2004–2007) Universities. She is currently working as the head of the Department of Child Health and Diseases Nursing at Çukurova University, Faculty of Health Sciences, Turkey. Besides being an instructor and a vice principal at the college, she has coordinated and performed in-service training programs for healthcare personnel, carried out symposium vice presidency, assistant journal editorship and reviewing, and chair in nursing department. Associate Professor Şenay Çetinkaya has international articles (10), international books chapters (6), and national chapters of a book (2); has translated on a vocational book (thesaurus of skills); has led postgraduate thesis (15) and research projects (3); and has posted many scientific papers (30) in national periodicals.

Contents

Preface

Obesity and the problems associated with obesity seem to increase further. Obesity is an important health problem that may result in social, psychological, and serious medical problems arising from increasing fat structure in cases where the energy intake exceeds the energy spent. Obesity is a chronic sickness with an increasing prevalence in both developed and developing countries, affecting children as well as adults. With the focus of researches on obesity and health problems, it has been reported that obesity prevalence in toddlers has increased as compared to 30 years ago and 30% of fat children turn into fat adults.

The obesity of the family, its socio-economical status, educational status, and family type are all related to toddler obesity. The activity of the family prevents the child from being obese. Mothers need to undertake an important role in order to avoid obesity of children in preschool period, since mothers have an important part in sharing the activities and diets with their children.

The treatment of childhood obesity is difficult; it is a disease with both physical and emotional aspects. Furthermore, it is a high possibility that obese children may turn into obese adults, and this disease may end with other illnesses and even death. Therefore, taking measures in advance may save lives.

The period between 1 and 3 years of age is a time when walking, running, speaking, nutrition habits, and toilet training habits are gained. Starting from the first year of life, the child grows to gain his/her independence; she/he turns out to be a member of the family that has started to change. In this period of development and change, the nutritional habits of the child directly or indirectly are affected by the nutritional habits of the family, particularly those of the parents. For this reason, the child should be led to eating different kinds of dishes so as to help him/her to acquire a certain habit of choosing the right food that extends to forwarding ages. Healthy nutrition advices can be directed for the whole family; however, the need for special kinds of nutrition for small children should be taken into consideration.

The nutritional habit of a child in the toddler period determines the nutritional habits in later ages.

Getting busy with some other things during nutrition also leads to children's obesity. Because children continue to eat without perceiving that they are already full if they are directing their attention to something else. This is an important factor for the development of obesity.

It was found that the prevalence of obesity among students who spend more than 3 hours a day watching TV was rather high. Parents should be trained on this issue.

In our study, it is found that the time the group of 1-3 aged obese children spends watching TV is found to be rather great. It is necessary to train families and caregivers on this issue. As there is a significant relation between the daily play hours of the child and the RW (weight according to height is a commonly used criteria in diagnosing obesity in children) value, it important for parents to spend more time playing with their children and to increase the play hours. In order to prevent obesity, increasing the area of play and play activities of children is advised. The risks of obesity should be considered in children during toddler period and the rate of obesity should be decreased especially at these ages. In conclusion, the families should be made aware of the factors that cause obesity in children in toddler period.

Also, I would like to mention the contents of this chapter in books and chapters. The chapters have been divided into two sections: 1. Child Education and 2. Child Psychology.

1. The contents in the Child Education section are:

— Thinking and Learning Demands in Contemporary Childhood

— Enhancing Young Children's Access to Early Childhood Education and Care in Tanzania

— The Early Childhood Educators' Attitudes towards Innovative Instructional Applications about Digital Learning Activities for Young Children

— A Bibliometric Study on the Use of Virtual Reality (VR) as an Educational Tool for High-Functioning Autism Spectrum Disorder (ASD) Children

2. The contents in the Child Psychology section are:

— Influence of Parental Divorce on Anxiety Level of Adolescents

— Reflections on Working with Young Refugee Children

— Children and Young People's Vulnerabilities to Grooming

Children undergo constant change and development, starting from the mother's womb. She/he grows up, develops relationships with people, tries to solve the problems she/he has encountered, and explores her/his talents through education. Childhood is one of the fastest periods of physical, mental, and social development. I believe that the quality of education given in this period will manifest itself in the body, mind, emotion, and behavior of children.

The evaluation of curious, wise children who are interested in innovation using educational programs applied in technological instruments allows the child to use his/her visual, auditory, and tactile intelli-gence by giving him/her the opportunity to understand himself/herself. I have included in the section on contemporary education offered to children, the child's personality, the creation of creativity, the process of learning, the significance of the emergence of skills, and the results of the research.

In contemporary understanding, the working areas of children's psychology are expanding considerably. The mental health of the children ensures that they are able to use their developmental abilities, cope with difficulties in life, be productive and be creative, and demonstrate cognitive, emotional, and behavioral characteristics appropriate to their developmental turn. This research was conducted to be able to identify behavioral disorders that may be a sign of children's mental problems and to shed light on the resolution of possible problems by facilitating the follow-up of psychosocial developments during the period of growth.

This book presents an overview of the contemporary approaches in the departments of child education and psychology, with the hope of them growing up as happy, peaceful, balanced, thoughtful, confident and successful individuals.

For my only daughter *Gözde* and all the kids...

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Child Education

Chapter 1

Thinking and Learning Demands in Contemporary Childhood

Cenk Akbiyik

Additional information is available at the end of the chapter

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Abstract

Is today's childhood is the same as the past's? Frankly speaking, we cannot answer this question as a clear yes. It is obvious that children today are more into tablet computers, social networks and online games than traditional child games. Besides, our communication styles have been changed significantly for the past years. We, no longer need to meet others face to face to ask for help or to chat. Artificial intelligence, machine learning and robots are another story of the contemporary world. Robots capable of perceiving their surroundings and making decisions have started to deprive many people of their jobs. But what kind of jobs will human beings perform? The increasing emphasis on innovation, cooperation, critical thinking, being creative, problem solving, communication skills and project management is an indicator of what kind of a business world will today's children meet in the future. This on-going trend also includes clues about how should children be educated. This study is focusing on thinking and learning demands expected contemporary children to meet. Throughout the chapter, the changing world was depicted briefly and then demands of the contemporary age on critical thinking, creative thinking, problem solving and learning were explored respectively.

Keywords: thinking skills, critical thinking, creative thinking, problem solving, learning

1. Introduction

It is a fact that the phrases starting with "the changing" are so popular in contemporary societies. Today's people want to change. They want to change the World, the technology, the economy, the educational system, the health system, etc. Many people are in search of innovations, new ideas and new trends. Our unending demand on change and innovation made our world a different place than it was 100 years ago. Technology, economy, lifestyles and many more have been through a drastic differentiation. We and our children are living

in a different society than yesterday's society. Everything changed but did thinking or learning demands on children remain the same? In this current chapter, I will try to question and present a brief picture of thinking and learning demands that contemporary children expected to meet.

1.1. The changing economy and business

The humankind has constructed many economical systems in search of food, wealth and power. Hunter-gatherer societies left their places to agricultural societies, then to industrial societies. Each system had its own demands and products. While some of the indicators of agricultural society were farmers, rural life, large families and food production, some indicators of industrial society were blue collar workers, urban life, nuclear family and goods production. Nowadays, we live in a society called as post-modern or post-industrial society. Apparent characteristics of this society are information production, services, white collar workers and advanced technology.

We know that the economy has deep impacts on everything. It affects how we earn, how we work, and what we eat. Interestingly, the economy also has impacts on our cognitive and affective skills. It affects what we learn, how we educate our children and even how we perceive the world around us. Nobody expects cognitive representations or schemas of a farmer and of an engineer to be the same or selective attention of a hunter and of an insurance broker, even though there may be significant similarities, to be the same.

1.2. The changing communication media

Within only a few decades, the communication media has evolved significantly from paper-based media to electronic media. Rapid developments in computer networks and software have resulted in various communication tools. Nowadays, a person without a mobile phone number or without a social network account is simply out of consideration. The communication rate and speed has escalated. Selfies, likes and location notifications are some of the many online ways we use to express ourselves. We are after transferring our thoughts and emotions using emoticons and animated gifs. Even one of the basic communication needs of human beings, face-to-face communication, has partially left its place to video calling.

Interestingly, the changing media has been affecting our way of communication. Nowadays, no one is willing to be waiting for sending or receiving messages. We demand immediate responses. Besides, there is an inclination of readers to read shorter texts written in everyday language. Blogs and short videos have already become dominant information sources for many people.

1.3. The changing technology

There is no doubt that the technology is progressing. Its rapid change rate can even sometimes be frightening for many people. Regarding technological changes, I have been neither

a pure optimist nor a pure pessimist. Because one particular technology may arise and solve some problems in humans' life while the very same technology may cause many other unpredicted problems. What attracts my attention more is how changing technology and society interact.

One interesting aspect of the use of technology is that its use shapes human relations, culture and economy sooner or later. Take information and communication technologies (ICT), for example. Recently, television has affected how we entertain ourselves and how we interact with our neighbours. Nowadays, the diffusing information technologies have been continuously affecting the way we communicate with others, the way we work, the way we express ourselves and even the way we learn. Ironically, today's wisest existence that everyone appeals to is an online search engine. Many thinking-related strategies such as research making, report writing and note taking have already changed and adapted with the current technology.

1.4. The changing culture and social structure

The term culture has various definitions. But, it is obvious that everything humans do impact culture in one or another way. The changing economy and technology have been affecting and changing culture and social structure. Popular culture has become even more popular with the widespread use of social networks. A song or a saying may spread among people in a very short time. You can see millions of people around the world displaying the same pattern of behaviour and then getting bored of it and then sticking to another pattern. Thanks to the communications media, the cycle of popularity has shortened dramatically. A particular type of behaviour can be labelled as "cool," "popular," "boring" and "lame," respectively within a few months.

1.5. The changing education system

It would be irrational to think that educational systems would not be affected from the changing word. Simply, the changing world has affected how educators teach. Among the educators, a shift from behaviourist to cognitive and from cognitive to constructive instructional methods can be clearly seen. Memorising, repeating and practising are just not enough to be a successful student anymore. Students are expected to search for information, to ask questions, to be creative, to solve problems and to think in many ways (deep, lateral, critical, creative, flexible, etc.). Educators have already been talking about a new instructional approach that is spreading. This new approach called connectivism is focusing on informal learning, making connections and learning hubs. It even proposes that learning can occur in non-human appliances such as computer networks or artificial intelligence devices.

On the other hand, the communication technology has also affected the way educational contents are delivered. Institutions no longer need to arrange face-to-face lessons. Distance learning environments brought convenience of delivering the content to large number of people

without limitations of physical distance. Blended learning environments supplied both flexibility of distance learning and social interactivity of face-to-face learning environments.

1.6. The changing childhood?

What does all this change mean? I tried to draw a very general picture of the change we experience in the contemporary era. But does it affect childhood? If so, how? In my opinion, living in a traditional society of the past was much more cognitively comfortable than living in a contemporary society. And I think this is valid also for children. Because children in a traditional society had to learn social rules and obey them. This was enough to survive socially. Those children did not have to ask questions, collect evidence, create new ideas or generate novel solutions. I think, nobody can deny the cognitive comfort of accepting the ongoing rules and procedures without questioning them. But the situation is quite different now. Today's children have to cope with changing technology, changing trends and changing role models. And generally, they are unable to find close social bonds preventing them to do the wrong (or what the society sees as wrong). In many countries, children are seen as responsible future citizens and they are expected to gain some degree of citizenship awareness, which means they must have knowledge to ask questions about political systems and applications. When large amount of knowledge a child has to learn about many aspects of complex contemporary life is considered, it becomes clearer that being a contemporary child is not easy. Contemporary children need to learn more and have certain cognitive skills to cope with demands of their societies.

2. Critical thinking in contemporary childhood

We can explain critical thinking as a kind of thinking focused on what to believe. But deciding whether or not to believe in something can occur in a number of ways. People may apply to heuristics, cultural standards or even mystical signals while making decisions. It is obvious that these decision methods cannot be called as critical thinking. Critical thinking is about logical and consistent thinking and also clarification and reasoning. So, we can roughly define critical thinking as thinking logically, consistently and clearly to decide what to accept. So, it can be claimed that critical thinking helps us to make right choices and decisions. As Epstein stated, critical thinking is a defence against a world with too much information and too many people trying to persuade us [1].

The content of critical thinking covers a number of skills and dispositions. Critical thinking skills generally involve analytical thinking. Reasoning, making inferences, questioning, clarifying meaning, identifying relations, interpreting numerical and graphical representations of information are among these skills. Some critical thinking skills such as dealing with fallacies involve language skills, whereas some others (i.e., assessing thinking criteria or evaluating conclusions) involve evaluative thinking. In addition, critical thinking is related with a set of affective variables, which are called critical thinking dispositions. Being open-minded, being aware of one's own emotions while making judgements and seeking alternative explanations are examples to critical thinking dispositions.

Critical thinking has borrowed many concepts and techniques from other disciplines such as being sceptical and asking questions from philosophy, reasoning and inferences from classical logic, deciding with numbers and interpreting descriptive statistics from statistics, cause and effect and correlational relations from scientific research, fallacies from rhetoric, diagrams and visual representations of information from mathematics and finally nature of human reasoning from psychology. In addition to these, critical thinking has strong ties with language and literature. In the subsequent sections, I will try to discuss the needs for and the uses of critical thinking from various standpoints.

2.1. Economy and business

As briefly explained before, the changing economy and business have yielded a demand in knowledge intensive job positions. These positions generally require more thinking skills than labour intensive jobs. White collar employees are expected to know, learn more, solve problems and make correct decisions. But unfortunately coming up with accurate and correct decisions is not always easy in today's business world. It requires a significant amount of knowledge, experience and thinking skills. It is true that most of us believe we have enough experience to say a few words about the situations we meet. We see nothing wrong about reaching a conclusion by comparing the current situation with the past ones. Only a few of us can realise that the information in hand may not be enough to reach a healthy conclusion. According to Kahneman, people overemphasise the seen, discard the unseen and reach conclusions rapidly [2]. That is why critical thinking skills are among those skills many employees should have and use. For example, thinking on such issues as adequacy of information, sources of information, validity of evidences, health of reasoning and validity of inference would help employees to make right choices and in this way to work more efficiently. Ironically, it is also true that there is a high risk of annoying your colleagues and bosses if you overthink critically and ask too many questions.

Through this perspective, I believe contemporary children should begin acquiring critical thinking skills before they become adults. They should start asking questions, seeking evidences and examining their own thinking as soon as they are mature enough to do.

2.2. Culture and social structure

The lifestyle of the past, which according to me can be identified with rural life, patriarchal large families, emphasis on traditions and authoritarian government officers, can somehow be seen consistent within itself. In general, obeying the authorities was seen obligatory even when theses authorities did not treat fairly. Seeking for justice was generally difficult. People tend to see themselves as servants or even properties rather than citizens. Applying traditions and religious practises was quite enough to find the true path and solve many social problems. Since, people were not expected to ask questions about the ongoing rules and applications, I see those days of humankind as the "cognitive comfort days." In fact, questioning the accepted rules and practises was seen as rebelliousness and generally was not permitted.

But the situation is quite different today. First of all, predetermined traditions have been weakening for many decades. Contemporary adults are expected to make their own decisions. And

making correct decisions is not always easy. It is a cognitive activity, which requires knowledge, thinking, planning, questioning, responsibility and more.

Moreover, most of the people today are living in cities where they know nothing or very little about the others. Each day, people meet tens of new faces whom they have to make decisions. We generally tend to make fast decisions about others based on shortcuts and our previous experiences. Unfortunately, few of us realise that first impression may be misguiding and more knowledge is needed to make a right decision. For example, being competitive may not be enough to be a good director or a kind voice does not always mean a nice person.

And finally, we know that herd psychology is one dominant characteristic of human beings. Although we think that we are unique individuals, our decisions are generally shaped by external stimuli. Although it is one of the survival techniques of humankind, it can yield some undesired results. The social pressure can be very strong among adolescents, which may cause smoking, fighting, joining to gangs or even use of drugs. Not obeying the group norms is difficult as it requires independent thinking, courage and criticising.

Frankly speaking, all these factors can easily take cognitive comfort of people away. Even worse, they can result in indecisive society members who are unable to make their own decisions and who permit the others to think for them. Today's people need certain cognitive skills to fulfil contemporary society's expectations and make right choices. I see critical thinking among the most important skills society members of today should possess. That is why contemporary children and adolescents should acquire critical thinking skills, at least to a certain degree, to become liable future members of the society. They should think critically not only during making political or business decisions but also in various social contexts.

2.3. Media

The media may be one of the most influential factors in a children's or adolescent's life in few ways. Each person in contemporary society exposes to serious amount of media messages every day. Media contents such as commercials, movies, serials or music clips continuously keep giving messages. The media messages aim to persuade us to do particular behaviours like buying a product or a service. Interestingly, these messages often do not contain any explicit information about the related products or services. Instead, they try to convince viewers by affecting their emotions. Hence, emotions are strong factors that start and guide our behaviours; media messages aim to make us think that we will feel more confident, happier or healthier when we behave in accordance with them.

On the other hand, we know that role models are important sources for learning. According to social learning theory, behaviours are learned from the environment through the process of observational learning. Thus, a role model may start or encourage behaviours approved by the society, whereas another role model may start the unapproved ones. The effects of media contents can be serous when we think that movie and music stars and even cartoon characters may be seen as role models for many children and adolescents.

The hypodermic syringes model is one of the oldest communication models. It claims that media messages can be directly injected into people's minds. Today, the hypodermic syringes

model has lost its popularity. Because we know that there are many factors such as background knowledge and experiences, culture and attitudes that manage how a person receives and accepts messages. Critical thinking skills of children and adolescents can play a really critical role here. Because critical thinking skills are like cognitive protectors, they are among the skills that may protect viewers from bombardment of media messages.

But there is more. Media messages are not only commercial messages, which are trying to persuade us buy something. The history of humankind is a stage full of endless power plays. From emperors to sultans, from governments to companies, a considerable number of people want to hold power in their hands to dominate others. Media often acts a means of constructing and maintaining power. For example, propaganda is a known technique used to lead masses to desired paths. It is used to influence an audience often by presenting facts selectively or using loaded language. Interestingly, propaganda aims to produce emotional rather than rational responses. To an extent, propaganda cannot be identified easily by many people. Because, it uses many manipulative techniques. For example, by selecting specific words and phrases, events can be presented better or worse than they actually are. The very same group of people may be labelled as "terrorists" or "guerrillas" or "freedom fighters" by different media groups.

Without certain cognitive barriers, a child or an adolescent would be open to all media messages. You may think that legal regulations may be enough to keep children and adolescents safe. But in fact, children and adolescents need to have certain cognitive barriers to be able to protect themselves. These cognitive barriers may be constructed with the help of critical thinking skills.

Critical media literacy is one field dealing with the acquisition of these cognitive barriers. Children and adolescents need to practise certain exercises in order to gain this critical awareness. For instance, one of the easiest ways to apply for parents is co-viewing. Co-viewing is watching videos and TV together with their children and talking to them while watching. Asking questions such as "Why do you think did they do that? Everyone in this video looks so happy. Can it be the same in real life? What did you see in this commercial, can it be true? What may be their purpose?" and discussing the answers is an effective way to construct critical media literacy skills.

2.4. Political systems

Uneducated, unthinking and uninformed societies may be ideal for authoritarian governments and dictatorships. But it seems that democracy has been becoming the leading political ideology all over the world. The democracy, in modern usage, is a system of government in which the citizens exercise power directly or elect representatives from among themselves to form a governing body. In addition of using their votes during elections, the key role of citizens in a democratic system is to participate in public life and become informed about public issues. Citizens of a democratic country are expected to watch carefully how their political leaders and representatives use their powers.

It is accepted that people should collect information, reason, make inferences, criticise and ask questions in a democratic political system. These skills are obviously within the content of critical

thinking. You need to think critically to be able to ask the right questions. You also need critical thinking to make valid inferences and to reach correct conclusions. In fact, critical thinking is seen as a necessary skill for the people living in a democratic society. That is one of the main reasons underlying the efforts to teach critical thinking skills or include them in school curricula.

Expecting children and adolescents to keep responsible citizens may be found too much. I would not disagree with this idea. But in order to become responsible citizens of the future, they should begin acquiring critical thinking skills during their childhood. Hence, acquiring, adapting and using these skills require a certain amount of time, practising and a considerable effort.

2.5. What does critical thinking mean for contemporary children?

Throughout the sections above, I gave brief explanations from standpoints of economy and business, culture and social structure, media and political systems. I wanted to depict a brief picture of how critical thinking is essential in contemporary life. But what does critical thinking mean for contemporary children? We know that critical thinking requires a significant amount of cognitive processes. It also requires a certain level of both cognitive and affective maturation. It would be unrealistic to expect a child think really critical before he or she reaches the formal operational stage. But as will be explained in later sections, critical thinking skills cannot be acquired in a few months of time. Acquisition of critical thinking skills is a process and it needs practice and application of these skills in various real-life situations. Children should be thought and guided to practice critical thinking skills, of course using proper techniques and situations in accordance with their cognitive and affective development, even in their early developmental stages.

Moreover, critical thinking is not only a set of cognitive skills. As explained earlier, it also involves affective responses such as developing courage to ask questions. We know that affective responses demand longer time periods to foster and internalise. This is another reason of why contemporary children should begin practising critical thinking before they become adults.

At this point, I have to state that children of the Western world are more advantageous in terms of critical thinking. Critical thinking is a legacy of the Greek adopted by the West. Also, critical thinking is culturally valued in many Western countries. But the situation is reverse in many Eastern countries. As stated earlier, critical thinking is not desired and valued in some cultures. That is why contemporary children living in Western countries are able to acquire these skills easier and use them more freely.

3. Creative thinking in contemporary childhood

Most executives, many scientists and almost all business school graduates believe that if you analyse data, this will give people new ideas. Unfortunately, this belief is totally wrong. The mind can only see what it is prepared to see. Analysing data will enable the analyst to select from his or her repertoire of old ideas and find which one may fit. Analysing data will not produce new ideas [3]. That is why if we want children and adolescent to produce new ideas, we have to ensure they are able to think creatively.

Creative thinking is referred with "thinking the original," "thinking the unthought" or "seeing the unseen." Statements such as creative thinking, creativity, innovation, difference, authenticity and originality are so popular in contemporary life. It seems as people are likely in a continuous search of the new. But personally, I find this emphasis on the "new" so artificial and exaggerated. Because, I see that individuals are not capable of thinking of ideas completely new and totally different from the existing ones. Big innovations do not come suddenly and in one piece. Our creative imaginations must have something to work on. As Adair stated [4]: we do not form new ideas out of nothing.

3.1. What is creative thinking about?

Although it is clear that creative thinking is about new ideas, it also involves making judgments about them. The creative process includes elaborating on the initial ideas, testing and refining them and even rejecting them [5].

Paul Torrance, commonly known as the "father of creativity," identified four creative thinking skills: fluency, flexibility, originality and elaboration. His research also provided evidence that these four skills can be taught and assessed [5].

A simple search reveals the creative thinking literature, which is full of stories of inventors making sudden and unexpected inventions. But these kinds of sudden enlightenments do not come to any people. Instead, they come to the ones who are focused and who spent considerable cognitive effort on one specific subject. Thus, creativity is a process and it is subject to effort, time and preparation. The nearest approach to identifying an underlying process is the one made by Graham Wallas. He proposed that the generation of original ideas passes through four phases: preparation, incubation, illumination and verification. Although creative thinkers may not follow the same sequence, it is nonetheless a useful framework [4].

3.2. What is practical value of critical thinking?

As stated earlier, the business world has been putting great emphasis on new ideas. Without very strong reasons, no one expects them to spend their financial and human resources on innovation, creativity and creative thinking. There is a creativity game going on and while the good players can boost their businesses, the others draw back or remain the same.

According to Bono, the need for creative thinking is related with a number of factors [3]. Reducing costs of quality programmes is the first one of these factors. Because doing the old things with more quality may not be the right answer. There may need to be a change in what is being done. Maintenance management is the second reason. Maintenance management is strongly oriented towards problem solving. And there is a need for creativity to solve problems arising time to time. And finally, competition is the third reason. There is a need for some product and marketing initiatives differentiation to keep up with competitors in terms of price, quality, distribution and promotion.

On the other hand, it will not be fair to limit the value of creative thinking with just businesses and technology. Political systems, social sciences, art, literature, philosophy and media are all products of human creativity. Without new ideas, none of them would be possible.

3.3. Creative thinking and artificial intelligence

Artificial intelligence is the study of intelligence exhibited by machines. With the help of artificial intelligence, many tasks in our lives became easier. From voice recognition software to self-driving cars, artificial intelligence is progressing rapidly. We know that computers are already far better than human cognition in a number of tasks. For example, they outperform humans in making calculations and performing repetitive tasks. But computers fall very behind of human mind when we talk about thinking skills. But it seems that with the advancing artificial intelligence technologies, machines are approaching human mind step by step.

Today's artificial intelligence devices are designed to perform a narrow task. But, the long-term aim of the researchers is to design a general artificial intelligence. When this happens, we can see devices that are learning, making decisions, asking questions and even criticising. No need to mention that such sophisticated devices will have deep impacts on every single system that humans created. From robotic workers to policemen, artificial intelligence would be everywhere taking many jobs from humans.

According to me, the last thinking skill a machine could perform will be creative thinking. And I think, in the future the distinctive thinking skill among artificial intelligence and human mind will be creative thinking. That is why, creative thinking of children could be more important for their own future. In tomorrow's world, only those who possess distinctive skills, especially creative skills, would be able to find better jobs.

3.4. What does creative thinking mean for contemporary children?

Children, especially at their early years, are naturally creative. Probably each one of us has witnessed how unusual connections children can make and how unexpected answers they can produce. This characteristic of children depends on their creative innocence. Neural pathways in children's brain form with time and experience. When an individual reaches to adulthood, he or she acquires, to a large extend, the thinking ways of the society in which he or she lives. Cultural viewpoints, heuristics, prejudices, past experiences and generalisations force individuals think in one direction limiting their capacity of creative thinking. In this case, special trainings and methods are used to catch the lost creativity once again.

But as known, creativity is not valued in every society. Living in a society where creativity is not valued can be difficult for children. In such societies, children are raised hearing precautions that mean "you are not supposed to do anything different and new, just obey the traditions." But it is true that all societies require new and original ideas. All societies need inventors, innovators and pioneers.

I believe it is largely parents' and teachers' duty to show effort to protect this natural tendency of children. And this can be achieved partially by creating creative learning environments (as will be explained later) and partially by displaying very simple behaviour patterns. Patterns such as avoiding laughing at children's ideas, listening to them seriously, showing interest in their opinions, asking questions about their ideas, answering their questions patiently and encouraging them to think and create more will ensure natural curiosity and creative of children. Otherwise, I am sure it must be discouraging and even offending for every child not to be listened or getting ridiculed.

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4. Problem solving in contemporary childhood

Human life is full of various problems to be solved. In very broad terms, a problem can be defined as a difficulty that has to be solved. It can be surprising how even ordinary problems we meet each day in our daily lives can require strategies to be solved. For example, such as preparing tea, a simple task we solve without even thinking, has many steps and it require some knowledge. Problems we encounter may be in various forms such as logical, algorithmic, case based or design based.

Problem solving is not a single skill, but rather an overlapping of a number of thinking skills. Likely to be involved in it are logical thinking, lateral thinking, synthesis, analysis, evaluation, sequencing, decision making, research and prediction [6]. While some of these problems by applying certain rules and procedures, like logical and algorithmic problems, some problems require intensive thinking and critical thinking skills. On the other hand, solution of design problems and case-based problems demand creative thinking to generate new and original ideas.

As we see, problem solving skills involve selecting tools and procedures that serve to overcome the difficulty. Problem solving is a complex process requiring a set of skills in which some are cognitive and some are affective. Cognitive aspect of problem solving is about reasoning, critical thinking, creative thinking and decision making. Problem solving is also related with affective variables such as self-confidence, communicative skills, motivation and self-efficacy. Problem solving has also a behavioural aspect, which is going into action and ability to implement generated solutions.

The known steps of problem solving have been proposed by Polya. Although he proposed these steps for mathematics instruction, they reflect a general approach to problem solving and they can be used in various problems: Understanding the problem, planning, implementation and evaluation. Other models proposed on problem solving more or less reflect the steps of Polya.

People face many different and new problems as their lives move away from the traditional. Solving problems in traditional manner can be seen as referring to ongoing applications and rules, using heuristics and cultural shortcuts. But generally, solving most problems requires some sort of strategy, a method. When people are solving problems, they may use all more than one method. This is quite logical, as the heuristic method can lead to a very rapid solution while the systematic search is slowest [7].

4.1. What does problem solving mean for contemporary children?

Contemporary children face various kinds of problems. Of course, a part of these problems are no different from the problems of children of the past. On the other hand, contemporary children have to cope with many contemporary problems. I see problems regarding educational system as the first group of problems contemporary children face. The compulsory education policy has eroded the elitist structure of educational institutions. Despite many ongoing efforts, today schools may force students to confront with many problems such as bullying, substance addiction, mobbing, peer violence or gangs. It is clear that contemporary children should have necessary affective and social skills in order to be able to cope with all these problems.

According to me, technological problems are the second group among contemporary children's problems. Today's children use many technologies such as computers, tablets, mobile phones, social media sites and blogs. While these technologies make our lives easier, they also produce many problems. Keeping personal information safe, plagiarism, online bullying, ineffective time management, exposure to harmful images and even internet addiction are among these. Children today also have to learn how to use these technologies effectively and properly.

Changing social and family structure may form third group of problems contemporary children have to struggle. Large families of the past have disappeared. Today's families are formed by generally three or four people, which means children may not have enough social interaction within the family. Moreover, divorce rates are rising gradually resulting many broken families. Getting used to living with either of the parents, step parents and step sisters or brothers is another big problem of today's children. That is why it is curial to equip contemporary children with necessary coping skills and problem solving strategies regarding contemporary family structure.

5. Learning demands in contemporary childhood

In a changing world, educational systems remaining the same are unlikely. The changing economy, social structure, media and political systems have affected learning demands from children one way or another. Children have been expected to learn a variety of disciplines for a long time. Although priority among them might have changed over time, mathematics, literature, foreign language, art, science, social sciences and physical activities have been among these disciplines. But our contemporary age has put some more learning demands and also more responsibilities on children. The most important demand is seen as learner centeredness, which gives responsibility of the learning to students. Moreover, flexible learning environments, non-formal learning demands, new types of literacies and emphasis on thinking skills altogether create a different educational environment than the past.

5.1. From behaviourism to constructivism to connectivism

Instructional approaches are general understanding of theories and practices regarding instruction. Behaviourist, cognitive and constructive approaches are the three commonly accepted approaches in the educational literature. An observable shift in instructional approaches has been taking place for many decades.

Behaviourist approach is the oldest and it leans on behaviourism, a school of psychology that focuses on observable behaviours. This approach explains learning as change in behaviours. The most important principle is the role of external stimuli on learning.

The behaviourist approach had deep impacts on educational systems. Practices such as step by step explanation, use of rewards, emphasis on drill and practice, teacher centeredness and students seen as passive receivers are all outcomes of this approach.

Although the behaviourist approach explained many aspects of human learning, scientist realised human learning is far more complicated and cannot be shaped through only external stimuli. Besides, behaviourist practices fell short to find adequate solutions to some problems in learning environments. That is why, a second approach known as the cognitive approach began to foster.

The cognitive approach is also behaviourist in nature. But cognitivists stopped seeing human cognition as a black box. Instead, they grew an interest for discovering its nature. This approach also had deep impacts on schools and educators. Concepts such as mnemonics, learning strategies, learning styles and perception entered educational literature and found themselves many application areas.

Unlike the former two, the constructive approached derived from philosophy, not from psychology. The constructive approach brought a totally different perspective to learning. It defended a subjective position and explained learning as construction of information by the individual himself. Constructivism also suggested that responsibility of learning belongs to learner himself or herself. This approach gave priority to discovery learning, real-life problems, thinking skills, cooperation and context of learning. Although there were a few pioneering educators (like Dewey and Montessori) supporting constructivism long before it became widespread, the constructivist approach has started to spread after 1990s.

In the contemporary era, with the influence of information and communication technologies a new trend is fostering. For a while, educators have been talking about a concept called connectivism. It can be stated that connectivism is making an emphasis on informal and non-formal learning, the two concepts largely neglected by the other instructional approaches. The main focus of connectivism is about humans learning by making connections. Connections can be established by many ways. Going to a library, searching an online database, asking to an expert and joining an online community are examples to learning connections. Perhaps the most interesting and extraordinary aspect of connectivism is its explanation on learning. Connectivism states that learning does not take place only in living organism, but also in non-human appliances. This idea makes sense when we think about search engines, artificial intelligence applications and information databases.

The impact of connectivism on educational systems is still not clear. I believe the trend will be towards blended and flexible learning systems where each learner will be able to have a flexible and partially personal schedule and curricula. Also students will be able to participate in lessons and learn partially independent of physical restrictions.

5.2. Flexible learning environments and non-formal education

If I have to choose just one word to describe the future of education, this would be "flexibility." Considering needs and comfort of humans, many manufacturing and services sectors have been offering flexible and personal products. I think educational systems will not be able to stay out of this trend. Higher educational institutions have already begun offering flexible programmes for their students. Student exchange programmes, double degree programmes and chance of selecting the major after admission are related examples. On the other hand, universities try to make their programmes more flexible via creating blended learning

environments. Blended learning is a hybrid methodology. It means face-to-face learning environments and distance learning environments are used together. Blended learning is getting more attention as such environments provide both human-human interaction and communication and flexibility at the same time.

I think other formal education institutes (primary schools, secondary schools and high school) fell behind universities in providing flexibility. This situation can be explained if developmental stages of the students of these institutions are taken into account. But I believe, the entire schooling system will be forced to change to create flexible learning environments and programmes in the close future. Personally, I am dreaming about a schooling system that I and my child together will be able to create a personalised programme by selecting lessons, lesson hours and instructional tasks out of a pool and then complete the requirements through different environments such as at a school, at a course or through online lessons.

On the other hand, we know that we acquire a great portion of our knowledge not at schools but outside the formal education system. Self-directed readings, personal interests, courses and interest groups occupy great place in our knowledge base. For example, I personally sometimes feel surprised when I see how much my son has learnt from watching online educational videos falling onto his areas of interest.

Non-formal education is a term describing organised learning outside of the formal education system. Examples of non-formal learning include sports lessons, arts lessons, educational courses, conferences and continuing professional development programmes. The objectives of a non-formal learner may be to increase skills and knowledge, as well as to experience the emotional rewards associated with interest in a subject matter. Non-formal education provides flexibility in organisation and methods. It encourages children and adolescents, as well as adults, to choose their own programme and projects. By this way, learners can find flexibility and freedom to explore their emerging interests. While non-formal education is popular among the adults, I believe it should be more common among children and adolescents since reaching information and educational sources are much easier today.

5.3. Thinking skills

Thinking skills are generally investigated under three main titles, which are critical thinking skills, creative thinking skills and problem solving skills. All of these skills are co-related and affects the other in some ways. Interestingly, these relations may be both in negative and positive directions. For example, critical thinking focuses on clarification and consistency. But these concerns may be factors inhibiting creative thinking, which focuses on making remote connections. Besides, formal structure of critical thinking may also put individuals think through only one way. But on the contrary, critical thinking is a necessary skill to evaluate newly created options. Vice versa, critical thinking and creative thinking are very necessary components in a problem solving process because problem solving requires many subskills requiring the both. On the other hand, an effective problem solving process may not always require using critical thinking or creative thinking. Sometimes using cultural shortcuts as heuristics may produce a lot faster and more economic solutions. That is why, if we want contemporary children and adolescents to possess thinking skills, they should be exposed to various thinking skill activities at various contexts.

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5.3.1. Instruction of critical thinking

Critical thinking consists of a set of skills and dispositions. The critical thinking skills can be grouped as formal and informal skills. Formal skills are content independent. That means they can be though independent of a subject matter while informal skills should be thought in a context. Here, two opposing views arise. Some educators claim that critical thinking can be thought free from a context. Teaching formal rules would be enough to acquire critical thinking skills. The other view claims that there is not such a thing as pure critical thinking and critical thinking occurs in a context. So, these skills must be thought within a subject matter.

I see critical thinking having both aspects. That is why both approaches should be used to reach an effective instruction. Many skills of critical thinking can be thought independent from a specific subject matter. So, various examples and situations from various subject matters can be used during their instruction. For example "if statements, cause and effect relations or fallacies can be studied independent of a specific topic."

On the other hand, every discipline may have its own critical thinking rules. On these special occasions, the content has to be known in order to be able to ask right questions or to evaluate evidences. Otherwise, critical thinking may remain too superficial and yield ineffective decisions.

Critical thinking can be fostered through various disciplines. According to me, language lessons hold a special place among these disciplines. Because exercises on four language skills provide very convenient means for critical thinking. Students can start learning initial questioning techniques (i.e., h-w questions) during these exercises. Besides, writing activities are especially vital for fostering critical thinking skills. A clear and consistent essay shows a thinking mind. Social science lessons also provide valuable situations for critical thinking. Case studies and discussions may enable students to think from different viewpoints. And philosophy (or a similar lesson with a different name) is the source of methodological scepticism and it requires intensive critical thinking. I find instruction of "systematic philosophy" in philosophy lessons very important for gaining critical thinking skills and dispositions.

On the other hand, the scientific method, which is closely related with critical thinking, is generally thought at science lessons. Formulating hypotheses, making experiments, observing, collecting data and evaluating the hypotheses are all activities to foster critical thinking of students. Mathematics helps critical thinking of students in other ways. Interpreting numerical data and reading charts and using sets are common to mathematics and critical thinking. Besides, ill-structured mathematical problems may help students to assess known information and decide what else has to be learned, which is one of the main critical thinking skills.

Unfortunately, all these efforts may remain fruitless if children learn critical thinking skills but do not use them in their lives. Usage of critical thinking skills can be maintained with critical thinking dispositions, which is the other aspect of critical thinking instruction, the affective domain aspect. Arranging arguments, encouraging children to ask questions and dealing with contradictory situations are some examples, which can be used to foster critical thinking dispositions. Teacher and parent attitudes are extremely important for gaining critical thinking dispositions. Children and adolescents may acquire these dispositions through observation. Especially, developing courage to ask questions is a very valuable disposition and can be learned effectively by observation. That is why children should see their parents and teachers as role models of critical thinking.

5.3.2. Instruction of creative thinking

There is a general tendency to think that creative thinking is natural. It is a gift given to some people. Perhaps natural creativity of children arising from their creative innocence (as explained earlier) makes us think that way. But Bono ([3], p. 31) rejects the claim that creativity is natural and cannot be taught. And he proposes creative thinking skills can be learned and states that there is a lot of experience showing that training in creative thinking can make a significant difference.

Because creative thinking is involved in making remote connections, students should be exposed to activities that demand creative questioning, real-life problem solving, brain storming, webbing, dreaming, visualising, symbolising, transforming, divergent and convergent thinking. Through this perspective, many instructional methods can be suggested. For example, creative drama and poetry requires the use of imaginative creative skills. Therefore, they provide an enjoyable way of developing those faculties.

The atmosphere of the learning environment is also very important for fostering creative thinking. Because creativity is infectious; if you want to become more creative, you should surround yourself with creative people and seek out creative environments ([5], p. 14). Learning environments designed to foster creative thinking should also focus on curiosity.

On the other hand, asking questions is important for creativity and it requires being ready for surprising answers. Developing your capacity for creative thinking will bring rewards, but they may not be the expected ones. A creative thinker needs to be adventurous and open-minded like a resourceful explorer ([4], p. 28).

5.3.3. Instruction of problem solving skills

Although children learn a great deal from our lives, effective problem solving skills may not always be acquired in the flow of daily life. But according to general tendency, these skills can be learned through instruction. That is why teaching of problem solving skills is among general aims of education systems.

I find tendencies and attitudes towards problem solving as important traits in problem solving process. Because everyone would appreciate critical roles of affective characteristics such as courage to solve problems, willingness to cooperate, ability to stay calm or being able to differentiate emotional passions and real needs. So, it can be said that an affective problem solving instruction should focus on acquisition of affective variables.

Problem-based learning is a constructive learning method where real-life problems are brought to learning environments. This can be done by using scenarios, cases, biographies, videos or through observation. Through problem solving process, learners are expected to investigate, propose novel solutions and evaluate their solutions in terms of feasibility, applicability, budget, weaknesses and strengths. Problem-based learning process may be complex, hard, confusing and even sometimes discouraging for students. But, well-managed problem solving activities would be very helpful in gaining problem solving skills.

Unfortunately, problem-based learning may require time, money and relatively more effort. In classical schooling system where teachers have many constrains on time and budget, it seems difficult to present an effective problem solving instruction. Because they may provide more flexible and free learning environments, non-formal education would satisfy this need on problem solving instruction. Courses, certificate programmes, interest groups and personal development trainings would help children and adolescents in gaining the desired problem solving skills through various contexts.

6. What should parents and educators do to help contemporary children?

Parents and educators have huge responsibilities in preparing children for life. Regarding instruction of thinking skills, schools have already been taking various steps or at least they claim they do. As these skills have been investigated by educators and scientist for more than 30 years, they are in the focus of many school curricula. But, it is also observable that despite all these efforts, thinking skills may not be acquired by children adequately enough through the formal education system. Besides, although schools spend considerable efforts on technology integration, they fell behind many sectors in maintaining flexibility. That is why I put a substantial emphasis on non-formal and informal education.

First of all, parents should be aware of their vital roles as being first and the most effective role models of their children. Conscious parents will help their children to overcome many thinking problems through the flow of life. Parents also have responsibility to exert principles on media selection. Proper video channels, TV programmes and social network connections would contribute to children's thinking and learning without even getting noticed. Second, social surroundings of children have very important roles on their learning and motivation. Interest groups and learning communities can be benefitted in presenting both desired learning environments and social atmosphere for the instruction of thinking skills. And finally, as they can provide more flexibility and manage different kinds of learning tasks better than formal educational institutions, non-formal educational institutions such as courses, camps, training centres, online programmes and certificate programmes provide much more convenient learning situations for children to gain thinking skills. Parents and children should see these kinds of learning situations as opportunities and they should try to get as much benefit as they could from them.

7. Concluding remarks

Throughout the chapter, I gave a brief depiction of thinking and learning demands in contemporary childhood. Within this scope, critical thinking, creative thinking and problem solving skills were explained and also learning demands in the contemporary age were touched. If the main idea of the chapter had to be stated with only one sentence, it would be: contemporary children have to learn and think more than their peers in the past as they have to face different challenges.

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Chapter 2

Enhancing Young Children's Access to Early Childhood Education and Care in Tanzania

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Additional information is available at the end of the chapter

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Abstract

This chapter draws on the current situation of limited access of young children to early childhood education and care (ECEC) settings in Tanzania. It offers information and evidence on early childhood education and care (ECEC) from an international perspective to those who are, directly or indirectly, involved with young children and their families. Basically, early childhood education and care in Tanzania is still unsatisfactory. Many children have no access to early childhood settings for various reasons including: lack of parents' awareness on the importance of early investment in education, lack of support from the government, low socio-economic status of parents, gender discrimination, and traditional norms and cultural values. To improve the situation, there is need for a forging of partnership between the government, parents, and the community. Government policy-makers have to set clear policies regarding how quality early childhood education and care can be equitably funded and conducted throughout the country.

Keywords: access in preschool settings, early childhood education and care, early investment, parents and community involvement, preschool teachers, socio-economic status

1. Introduction

The objective of this chapter is to offer information and evidence on early childhood education and care (ECEC) from an international perspective to those who are, directly or indirectly, involved with young children and their families. Ideological and historical context can explain how a system of ECEC develops within a country, and an understanding of the ECEC system and its characteristics can describe how effects upon children can occur. The chapter draws on the current situation of limited access of young children to early childhood

education and care settings in Tanzania. Importantly, it explains how young children access to early childhood education focusing on Tanzanian context.

Early education is the foundation for all formal education worldwide. Early childhood education and care (ECEC) is conceptualised as incorporating both education and care, which has sometimes been called *educare* [1–3]. However, education and care in many countries, including African countries such as Tanzania, Kenya, Zimbabwe, Lesotho, Zambia, and South Africa has been institutionalised into separate administrative arrangements for care and education [1, 4]. Such separation of administrative arrangements runs counter to a holistic view of learning and development and that education and care should be integrated, with the child and family as the central focus. For example, New Zealand was one of the first countries in the world to integrate all early childhood services under an educational administration, reflecting that education and care cannot be separated and that quality services incorporate both [5]. Also it is important to realise that childcare is diverse, and do not make the mistake, which is too common amongst politicians, of regarding day care for under-ones as basically the same issue as kindergarten for 3–4-year olds. Some forms of ECEC have explicit educational aims and are usually targeted on young children from 3 years upwards, which are nursery schools and kindergartens [2]. There is an overlap between the care and education-oriented divisions with the distinction becoming increasingly blurred, with recognition of the significance of learning in the first 3 years for longer term development.

For many countries worldwide, childcare has traditionally been considered the private problem of families, which often gives rise to resentment to increased childcare provision. However, progressively it is taken for granted that childcare is here to stay given the social changes occurring in developed and developing countries. In industrialised societies, ECEC is now being recognised as part of the infrastructure for economic development [2], since childcare, whether or not accommodates the educational elements, is a necessity for modern societies with women as central to the workforce. The diversity in ECEC provision across countries reflects.

However, in Tanzanian context, parents and community at large have negative attitude in regard to early investment, they perceive investing in early years like a waste of money [6, 7]. In this regard, their complains include the notion that young children who have access to the ECEC centre just go there to take porridge, sing songs and play and their parents pay for these. Parents argue that at that early age parents and the community should serve as the teachers of young children, until the children grow to the primary school age.

Views of children as a distinct social group with rights have developed over time. Pence et al. [8] argue that for much of the twentieth century and throughout most of the world, African countries included, ECEC was largely invisible as a state-policy concern. Young children, in the eyes of most states, were an appendage of their parents, or embedded in the larger family structure [8], and were treated as objects to be shaped and socialised, seen as just properties of their families, and as incomplete human beings [3, 9]. The child as an individual social entity was largely unrecognised [10]. This portrayal contrasts with an understanding that children are persons who, while thriving in conducive, warm, and supportive environments, are "active participants in their social worlds and have a unique part to play in their own development" [5, p. 15].

2. Value of ECEC and rationale for government investment

This section discusses two main arguments as to why ECEC is regarded as valuable and why governments should invest in it. The arguments are concerned with the benefits of early investment for children's learning and development, society and the economy, and social changes.

2.1. Benefits of early investment

Children's participation in good quality ECEC has benefits for the child's learning and development at the time of attendance and throughout their life [11, 12]. There is a growing recognition that participation in ECEC from 2 or 3 years before starting school is beneficial for all children and particularly for children from low-income and disadvantaged groups [12, 13].

Achievement or breakdown at this early education stage lays the foundation for success or failure in school, which in turn leads to achievements or breakdown in post-school learning [14–16]. A study by [17] reports that the early years (ages 0–6) are the time for brain development; therefore quality ECEC programmes are a key societal as well as personal imperative. Further, [17] emphasise that a child's environment and experiences start in *utero* and not only affect brain development, but also physical and mental health, learning and behaviour for a life time. McCain and Mustard [18] also support the view that development of the brain in the early years of life, particularly the 0–3-year olds, establishes the foundation of competence and coping skills for the later stages of life. This view is argued by Smith et al. [13] who state, "there are links between early sensory stimulation and the activation of the arousal system, chaotic environments can produce abnormal reactions to later stress, while nurturing sensitive environments allow children to respond more adaptively" (p. 28). Smith et al. [13] further emphasise, "young children need to be protected from lack of stimulation, over stimulation or aversive stimulation in the early years" (p. 28).

Ref. [9] asserts that investment in children 0–8 years is important because it gives "a good start in life involving a nurturing, caring, and safe environment" (p. 136) to children who are the future hope of any society and nation. Evidence suggests that providing quality ECEC services can also improve the economic well-being of countries [13, 19]. It is theorised in the literature that children who benefit from early education, especially those from disadvantaged backgrounds, are more likely to succeed in primary schools [12, 20]. Longitudinal studies have also found that children who benefit from a good primary education are more likely to succeed in secondary schools and tertiary education [12].

In support of early investment in young children, [17] report that participation in good quality early interventions leads to increased earnings in later life and stimulates positive social relationships. Many researchers have noted that improving human development in the early years is definitely a way to break out of poverty because early investment has a very high economic rate of benefits [11, 15, 17].

ECEC is an essential part of the education system worldwide [16, 21]. Many researchers assert that learning starts from birth continues until formal education begins, and continues all the way through life [22]. Early learning is the basis for future learning and early success results in later success, just as early failure can result in later failure [22, 23]. Therefore, investing in good quality ECEC provision from an early age can be seen as an effective means of attaining developmental targets, such as earnings in later life, cost savings, good life for children and families, and breaking cycles of disadvantage [11, 13]. One aim of ECEC has been described as building a bridge from early year's education to compulsory schooling [24]. ECEC is meant to support parents in the education of their children and also to address any apparent developmental delays.

In summary, current studies of good quality ECEC have shown notable success in promoting children's learning and development and indicate that the early years are important for early learning [15, 25]. International evidence shows that investing in good quality ECEC can bring cost savings and benefits to governments and economies [25], as well as to children and families.

2.2. Social changes

The second main reason for ECEC provision is claimed to be in response to social changes. OECD [26] advocates an increase in women's labour market involvement, the need to reconcile work and family duties on a more equitable basis, and the need to address issues of child poverty and educational disadvantage. This is because economic prosperity depends on maintaining high employment levels including maternal employment, and this has been a key driver of government interest in expanding ECEC. In other words, ECEC enables mothers of young children to engage in the labour market with consequent positive impacts on the economy and on countries' policies [2, 12]. However, [3] argue that the availability of early education and child care on the one hand can encourage women to attend to paid jobs, but on the other hand can have some negative effects for the well-being of family members because mothers may have multiple roles, that is, work and child care responsibilities.

Furthermore, writers report that developed countries have achieved high levels of quality in ECEC services combined with high rates of maternal employment [26, 27], whereas developing countries, such as Tanzania, despite showing a significant increase in women's employment, have not shown much advance in ECEC services [1]. Hence ECEC services do not automatically develop when there is a clear need for them. Other factors such as the ideology and politics arising from a country's history and culture are also important [9, 28].

3. The situation of ECEC in African countries

The situation of ECEC in many African countries is one of the developments due to various reasons. The level of training of staff is poor and many staffs have no training [1, 29]. Access is limited. There are few institutions which care for children aged 0–6 years and most ECEC

centres for 3 and 6 years old are found only in urban areas and are of poor quality [28, 30]. Similarly, the ECEC curricula are not helpful for young children, because of their poor consideration of children's needs and interests. Support from international organisations is mainly used for ECEC of children aged 3 years and above [1], so 0–3 year provision is particularly neglected.

A large number of disadvantaged families have found it difficult to get access to ECEC in African countries [1, 9]. Further, it is argued that there are challenges in developing ECEC programmes in under-resourced countries in Africa [9, 17, 31]. Young and Mustard [17, p. 73] assert, "the situation for Africa's children is alarming" showing examples of limited resources in Tanzania, Kenya, Uganda, Zimbabwe, Lesotho, Zambia, and Senegal. It has been argued that many African countries are looking closely at what services might be developed, at what cost, and for what expected benefits for children immediately prior to their entry into primary school [4].

3.1. The current situation of ECEC in Tanzania

Tanzania got its independence from British protectorate in 1961. After independence, Tanzania had to reform its education system in order to match the education provision with the needs of its people. But the government found it too expensive to invest in ECEC due to the country's low and unstable economic status [32]. So the government opened up doors to private institutions to run ECEC, while it concentrated on investing in primary, secondary, and higher levels of education [33]. Since independence, Tanzania has had a philosophy of Education for Self Reliance (ESR) [34]. This made it essential to enrol children in basic education in order for them to become productive members of society by taking on manual work in the community for self-sufficiency after completion of their primary education. The government's intention was that after having stabilised basic education it would turn back to ECEC matters [31]. ECEC matters progressed slowly with untrained teachers who had no formalised curriculum. Teachers just taught using their own experiences which were not founded in the ECEC area and they had guidelines which were also not prepared by ECEC experts [35]. This situation continued until the 1990s when the international policy statements about children's rights were declared [36].

As a response to international and national policies advocating the importance of education for young children as a right, the Tanzanian government also adopted this agenda. The government of Tanzania was one of the first in Africa to ratify the United Nations Convention on the Rights of the Child (UNCROC) 1989 in 1991, as well as the African Charter on the Rights and Welfare of the Child [37]. The government also supports the Jomtien Declaration on Education for All (EFA) and the Dakar Framework for Action [38, 39], both of which consider ECEC as a basic right as well as millennium development goals (MDGS) of the 2000s. The World Conference on Education for All held in 1990 at Jomtien, Thailand, marked a new start in the global quest to universalize basic education and eradicate illiteracy. Through the Jomtien Declaration and the Framework for Action, commitments were made and directions set for a decade of large-scale and sustained efforts [38].

The consensus reached at the 1990 World Summit by the countries present at this conference set a target for all children to be enrolled in primary education by the year 2015 [40]. But this is yet to happen in Tanzania.

The situation of children in Tanzania is still not satisfactory, and children are disadvantaged due to the inadequacy of social services, such as schools, health facilities, and environmental services [41]. In Tanzania 200,000 children under 5 years die each year and more than 2 million children are affected with malnutrition number [33, 41] from a total current population is 47.8 million [42]. Furthermore, a study by [33] reported that the few ECEC settings observed had limited resources. Children have no access to education due to high poverty, poor health services, and likewise, street children, pastoralist families (Maasai family) have no permanent settlement so it becomes difficult for them to get access to education [43]. These are just some of the many issues hindering children from getting opportunities to participate in ECEC.

3.2. The provision of funds from the government to preschools

The government normally gets funds from internal and external sources for various uses. External sources are like international agencies such as the World Bank, UNESCO, and UNICEF. All funds, whether internal or external, are collected in one container and thereafter distributed to various sectors. Therefore, the Ministry of Education in Tanzania also gets funds from the government to run educational matters. Funds from various sources, whether internal or external sources are collected in one container, thereafter the amount is allocated to various sectors according to the requirement and the availability of funds. However, the Ministry of Education did not allocate funds for operating preschools. For example, it is argued that the government through the Ministry of Education should supply Quota Budget Code to preschool education. Quota Budget Code refers to the system of supplying grants to schools, teacher education, and higher institutions in a quarterly basis.

In turn, the implementation is problematic; the allocation of funds for the preschool education through Quota Budget Code is not yet implemented. Preschool education does not have its own budget. Instead the funds are allocated to primary school unit hoping that if any extra could support preschool education, however, in reality even the amount allocated for primary schools is not enough to handle primary education matters [6, 36]. Preschool education is therefore funded through parents and community donations organised by local committees. It is apparent that the situation of ECEC services is not improving due to government's lack of commitment to this type of education.

For that matter, the situation in early childhood education and care settings in Tanzania is not conducive for children to learn various knowledge and skills. For instance, building facilities are poor and not completed and the local community seemed unable to manage the provision of quality teaching and learning resources, let alone donation in monetary form. Therefore, the government policy-makers need to set clear policies regarding how ECEC could be funded and conducted. These facilities were supposed to be provided by the government through the national policy guidelines on how ECEC could be funded and conducted. However, this is not the case.

Briefly, it is imperative that ECEC is recognised within education as the foundation for lifelong learning [2, 12]. Numerous countries worldwide recognise that education in the early years lays down the basis for all levels of education. In developing countries, like Tanzania, the situation of education for young children is not satisfactory. There are large numbers of children who do not have access to ECEC settings for a number of reasons such as lack of support from the government, lack of awareness of parents of the importance of early investment, low socio-economic status of parents, traditional norms and cultural values, and gender discrimination. It is recognised by the World Declaration on Education for All (EFA) and the Framework for Action that education is a child's right [38, 39], and it needs to be valued from early years. It is therefore of the highest priority that access to early childhood education and care services is enabled for all young children. It is within these early years that young children present the greatest ability to learn and develop. All efforts to develop education from the early years onwards should pay consideration to access, quality provision, and relevance to enable children to reach their full potential.

4. Qualifications of teachers and professional development

A key factor influencing the enactment of curricula is that of teacher qualifications, teacher education, and professional development. In Tanzania, the Ministry of Education, Science and Technology (MoEST) is responsible for initial teacher education (ITE) and professional development. Tanzania's Education and Training Policy (ETP) insists that the qualification of teachers and their ability to perform well in the class is a key factor in improving the quality education. However, the ETP is silent about the qualifications of ECEC teachers and as a result the implementation of this policy remains in question [40]. In some areas where children have access to early education settings, unqualified teachers work with young children without having knowledge and skill in relation to ECEC matters. Children are taught by retired teachers and volunteers on contractual bases and in other areas they are taught by primary school teachers who also teach primary school pupils as a result they had a heavy workload which reduce their efficiency. But in both circumstances, no professional development is taking place in order to improve the teaching and learning situation.

The concern of poor human resources is important, because qualified teachers with pedagogical skills to work with young children are reflected in positive learning outcomes. The government is responsible for locating qualified teachers as well as professional development; however, this appears not to be happening. A main argument here is that having primary teachers in the preschool resulted in inappropriate teaching styles; they lack the pedagogical skills for teaching young children, as they are not trained to teach young children, and a theoretical understanding of play-based learning is lacking. Literature shows that ECEC teachers do not get opportunities to attend any professional development for teaching a preschool class [30, 33]. As stated by [44], ECEC is a unique area and requires special preparation for ECEC teachers, and ECEC teacher education has a positive impact on teachers and teaching. Early childhood teacher education is envisaged as addressing both present issues and aspirations.

A numerous literature show that qualified teachers rich in pedagogical skills to work with young children can demonstrate social interactions, relationships and activities that promote learning and development [12, 13, 19]. Hence, spontaneous and reciprocal interactions within the context of caring relationships are vital components of ECEC. Enabling environments provide "conditions for the kind of teaching and learning that lead to quality outcomes for children, especially qualified staff, low child: adult ratios, small group size, and staff professional development opportunities" [11, p. 18]. Qualified teachers are expected to draw on their knowledge and experience of working with young children and pedagogy to offer the kinds of cognitive and non-cognitive skills that are linked with gains for children.

However, the situation indicates that the supply of qualified ECEC teachers is grossly inadequate. The government needs to support more teacher education in ECEC and the school inspectorate to supervise the standards and regulations of preschool education. There is also a need for the government to monitor and control preschool education curriculum enactment and pedagogy, including initial teacher education, qualifications, and certification. The lack of initial teacher education and professional development for preschool teachers in Tanzania, results in children who are not well guided due to the teachers' lack of pedagogical skills.

5. Parents and community involvement in early childhood education and care

Parent and community involvement in children's educational experiences plays a significant role in shaping children's social development, cultural values, and practices [45]. The involvement of parents as partners in ECEC settings provides an ongoing system which can reinforce the effects of the programme while it is in process, and helps to sustain them after the programme ends. The involvement of the parents and community as active participants is critical to the success of an ECEC intervention programme [45, 46]. When parents collaborate with teachers in their children's learning, they also become experts. Parental involvement is thus both a facilitator and a preserver, and the aim of intervention is neither for the parent nor the child on their own, but the parent-child system. It is argued that when parents participate at school and actively support and encourage learning at home, their children are more successful at all levels of education regardless of the parents' educational background or social class [45].

Parental participation should be viewed as a continuous process from home environments up to preschool programmes. Parents' communications with the early childhood centre have educational significance for the child and also for both parents and teachers [2], who learn more about the child from different perspectives and contexts. A study by [45] reports that collaboration between teachers and parents offers the child security and acceptance, and helps the parents to understand more about the child's areas of development, psycho-physical abilities [9, 46] and where additional stimulation is needed on the part of the teachers or parents.

Furthermore, parents are also involved in school-based activities. For example, they participate in school meetings, school committees, especially at community-managed schools [46];

they do manual labour on the school infrastructure, and help to prepare daily meals or snacks at school [45]. Karwowska-Struczyk [47] in Poland articulates that during parent meetings, it is common for the teacher to inform parents what children learn and do and what kind of curriculum activities the teacher proposes for the children. Then parents are free to ask what they would like their children to learn in the ECEC settings.

Parent's engagement in children's education is progressively viewed as an essential support to children's early learning, care, and education programmes. Effective parent engagement during the period from preschool through the early grades is a key contributor to children's positive intellectual, socio-emotional skills outcomes, and healthy development [46, 47]. The involvement of parents in preschools takes various forms that can be broadly classified as, home-based parent involvement, for example, parent-child reading and playing various games with children that offer learning enrichment; or community activities, such as volunteer work in building classrooms or renovations, taking children to the library and/or to study tours. School-based parent involvement could be volunteering in a child care or early grades classroom or serving on school committees as well as parent meetings [45].

Parents' commitment in a variety of other home and community activities has also been connected to young children's learning. Also, in the home environment parents' engagement can include playing alphabet games, helping children with art activities, and telling stories. A number of studies show that parent warmth and responsiveness to children's interests and needs are vital dimensions of parent engagement that promote children's learning [45]. Parents' responsiveness can be observed through home-based activities such as parent-child book reading and the use of praise and encouragement [2, 46]. Therefore, one way that parent nurturance may promote learning is by helping children acquire self-regulation skills that enable them to manage their socio-emotions and behaviour.

5.1. Socio-economic status of parents

The situation of ECEC in Tanzania is alarming. Children from families with low socio-economic status and low-income backgrounds are less likely to participate in ECEC services. The dire situation of people especially in rural area and their failure to enrol their children in ECEC centres has also been found by various writers in other developing countries. For example, [48, 49] found that in rural India, a large number of the households are involved in agricultural and associated activities, and their children are likely to take up this occupation at an early age with or without schooling.

A large number of parents/guardians are not enrolling their children in preschools. Amongst other reasons for this is their low socio-economic status and lack of financial support from the government.

This is to say not all parents could afford the continuous demand of school contributions and as a consequence, their children may become involved in child labour, truancy, street children, crimes, and delinquency. Low socio-economic status contributes to poverty, some parents find someone in the community, who seems to be in a good position and requests him to support the family on the promise that he be able to marry their girl child after she

has reached a certain age. But that marriage can take place even before her maturity. In the same way, other parents hide their children until they reach school age due to lack of money to pay for ECEC settings. Early marriage is also critiqued by [50] in Kenya, who found that some small girls get married at or before adolescence and begin bearing children as soon as they can. Furthermore, findings from the study conducted by [6] observed that due to poverty, the priority for education was for boys and not a girl child, girls having to remain at home waiting to get married even at a young age. This finding is supported by [51] who found that maternal wage rates and costs of ECEC centres affect children's enrolment in various settings; an increase in mothers' wages raises school participation of boys, but lowers that of girls, indicating that girls might substitute for mothers in housework and caring for small children [26].

Given the low socio-economic status of many citizens of Tanzania, it is argued that changes need to be made in order to raise the standard of living of the people. Tanzania is a blessed country with a variety of natural resources including areas of land, mountains, forests, national parks/wildlife, rivers, lakes, coastal zone, fisheries, minerals, coal and natural gas; still the country has failed to utilise the resources in order to support ECEC provision [52]. Many people have low income and no kind of support they get from the government in terms of education for their children. Hence, they fail to enrol their children in the ECEC settings. The Tanzanian government could locate agricultural extension officers in rural areas to give advice on farming inputs and the kind of crops to grow in relation to the weather. This view is supported by [53] who reports that low increases in rural sector productivity are mainly due to inadequate infrastructure investment. The finding is also closely related to that of [54] who reports that in rural areas people live in poverty, they cannot access good social services such as education, clean water, health services, and nutrition.

5.2. Degree of enrolment of young children to ECEC settings

In Tanzanian context, ECEC is conducted into separate administrative arrangements for care and education as was explained earlier. So, preschool education is a formal school system for children aged 4–5 years. Preschool cycle lasts for 1 year with no examinations for promotion purpose. However, lack of awareness of parents of the importance of preschool education is observed as another reason for parents not sending their children to preschool settings. Based on the lack of awareness and poverty, children do not attend schools as results children look for child labour and for girls end up with early pregnancies. It is also argued that in African context, Tanzanian in particular, a traditional child-rearing system contributes many parents/guardians not enrolling their children in preschool settings [9, 10]. Young brothers and sisters who are also small used to take care of their young children when parents attended individual farms or community activities. African governments need to raise public awareness about the value of preschool education. Low rates of enrolment in preschool education is also explained by [55] in Kenya who found that a lack of public awareness on the value of ECEC for children's learning and development and a lack of trust of strangers taking care of their children in ECEC settings were amongst the critical issues.

Enrolment of 5 -year olds 2016	Gross enrolment rate (GER)			Net enrolment (NER)			(%) of NER
Country wise	**M**	**F**	**T**	**M**	**F**	**T**	
	787,743	775,027	**1,562,770**	356,127	354,429	**710,556**	45.4

Source: Data from National Bureau of Statistics (NBS) [56, p. 32].

Table 1. Children's enrolment country wise in year 2016.

Experiences indicate that parents/guardians are not aware of the non-cognitive skills necessary for children's development. They seem to complain when their children are engaging in play and singing and define it like a waste of time. The view indicates that parents perceive learning as just writing, reading, and arithmetic and not for gaining other skills including motor skills, motivational skills, socio-emotional skills, persistence skills, and self-regulation skills. Indications are that the degree of enrolment of young children in ECEC settings countrywide is low compared to the total number of children. For instance, while the statistics from [56] indicates the total population of children aged 4–5 years old expected to be in enrolled in Tanzania by 2016 was 1,562,770, the actual number of enrolled children was only 710,556 (45.4%). **Table 1** below clarifies the situation.

6. Conclusion

The analysis of demands for early childhood education and care prompts a few general conclusions. It can be concluded that not only financial investment in ECEC would change the situation, nevertheless there are a number of other related issues such as governance and financial management, cultural issues, socio-economic status, gender discrimination, awareness of parents/guardians and community of the importance of early education investment, and others that need to receive adequate attention as they tend to strengthen each other in a complementary way. Therefore, to improve the situation, it is recommended that there is need for a forging of partnership between the government, parents, and the community in such endeavour; and that government policy-maker should set clear policies regarding how quality ECEC can be equitably funded and conducted throughout the country. All these issues contribute to the ongoing debate on childhood and family policy in Tanzania. The same matters also deserve consideration in specific research projects and innovative practices.

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Chapter 3

The Early Childhood Educators' Attitudes Towards Innovative Instructional Applications about Digital Learning Activities for Young Children

Ru-Si Chen

Additional information is available at the end of the chapter

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Abstract

The innovative value and practices of digital learning activities assist early childhood educators in employing effective instruction to improve young children's performance as well as advance their own professional autonomy to implement digital learning activities for young children. This study examined the factors and relationships about early childhood educators' attitudes towards the integration and behavioral intention of digital learning tools into young children's innovative pedagogical activities using a questionnaire survey. The questionnaire consisted of five factors, including digital innovative value (DIV), digital innovative practices (DIP), perception of instructional use (PIU), instructional professional autonomy (IPA), and behavioral intention to use (BIU). The researcher used structural equation modeling to analyze the survey data. The results showed that early childhood educators' perceptions about innovative value and applications of digital learning activities play a key role in the success of young children's performance and competence in preschool. The early childhood educators with positive attitudes towards the innovative consideration and practical instructional applications of digital learning activities had more behavioral intention to plan and design instructional activities with innovative applications of digital learning tools.

Keywords: attitudes towards innovative instructional applications, digital learning activities, early childhood educator, young children, structural equation modeling

1. Introduction

The innovative application of digital learning activities help young children with special needs or multiple learning styles to have more meaningful channels and opportunities to

access appropriate digital instruction to improve their physical and mental development [1, 2]. Digital learning activities help young children access and understand the world in meaningful and unlimited ways to explore their lives or society using digital applications [3]. Kartal and Terziyan [4] noted that digital learning activities help young children quickly improve their reading skills and develop complex cognitive performances. Korat and Shamir [5] argue that young children can engage in digital learning activities to improve their reading, easily focusing on the understanding of letters and sentences through amusing digital learning models.

In addition, digital learning activities provide young children with innovative social interaction opportunities and help them learn prosocial attitudes [6]. Vandermeer et al. [7] noted that the content of social interaction stories constructed by digital learning tools can help young children improve their interaction with their peers and resolve tasks cooperatively. Early childhood educators construct innovative and meaningful ways or learning pathways via digital learning activities to enlighten and assist young children to develop their social empowerment in line with everyday life experiences and social praxis [8, 9]. Early childhood educators use friendly and joyful digital learning tools to design instructional activities to help young children strengthen their learning motivation and resolve learning tasks to achieve appropriate learning performance [10–12].

Innovative digital learning activities open up young children's real learning opportunities so they can engage in the appropriate learning paths. Most early childhood educators agree with the positive value of digital learning activities, although they may feel insufficiently equipped with innovative perceptions or professional expertise to improve their instructional effectiveness and continuous behavioral intention to use (BIU). This study examines innovative teaching and learning characteristics embedded in digital learning activities. The researcher wants to consider how early childhood educators use innovative digital learning activities to learn with young children and to think about the professional autonomy and practical behaviors of digital instruction for young children.

1.1. The relationship between digital innovative value and digital innovative practices

Through the innovative integration of digital learning models and objects, teachers use such tools to establish appropriate instructional models to enhance the innovative meanings of their pedagogy [13]. The innovative digital value of such learning activities presents new integrated interfaces to highlight the innovative diffusion of digital technology. Teachers use innovative digital learning tools to build friendly learning environments that encourage students to strengthen and improve their learning effectiveness [14, 15]. Castek and Beach [16] note that teachers employ innovative learning tools to design playful pedagogy to support students' scientific performance. They use apps to assist students in constructing ideas with which to interact or navigating corresponding learning content.

Innovative applications of digital learning activities effectively play a critical role in early childhood education and develop young children's competence in understanding and problem-solving. Early childhood educators use digital learning tools to construct innovative and playful learning activities [17]. Early childhood educators help young children learn, through

the use of digital learning tools, to engage in learning activities and enhance their cognitive understanding and subject knowledge to reach the established educational goals [18]. In this regard, the technical expertise in the instructional value and practices of digital learning tools, the basic knowledge of the teaching profession, and the pedagogy of young children's learning activities can be key pedagogical factors for early childhood educators.

Their intentions about the digital innovative value (DIV) and digital innovative practices (DIP) influence their pedagogical expertise and professional considerations. It is helpful to recognize early childhood educators' attitudes towards innovative digital values and to explore their willingness to implement innovative instructional activities. Based on the foregoing, the researcher proposes the following assumption:

Hypothesis 1:"Digital Innovative Value" is positively related to "Digital Innovative Practices".

1.2. The impacts of digital innovative value on perception of instructional use and instructional professional autonomy

Teachers use innovative and approachable digital tools to establish their meaningful pedagogy in the learning context for students [19]. When teachers are willing to use digital learning tools to design and construct learning processes to improve students' motivation and performance, they can take action with innovative practices to form instructional experiences with appropriate innovative pedagogy [20]. Teachers employ the application of such tools to reveal the digital innovative value of perceived usefulness and innovative instructional intention, as well as to form a feasible model and apply flexible integration to advance students' learning efficiency [21, 22].

Early childhood educators employ innovative consideration to integrate digital learning tools into young children's learning activities. They make use of digital learning activities to help young children engage in the learning process and establish a meaningful link with learning effectiveness [23]. More importantly, they help young children link their daily life experience and digital learning situations to support young children in achieving their learning potential and promote learning performance based on schema.

Through the integration of digital learning tools, early childhood educators develop instructional empowerment, pedagogical social participation, teaching engagement, and instructional professional autonomy (IPA) [24]. Digital learning tools promote their professional courage to challenge the traditional teaching framework and fight against established rigid or one-dimensional teaching models. They attain professional autonomy to expand the breadth of their thinking regarding digital learning practices and make use of different methods to improve their teaching potential and professional literacy.

This study focused on how early childhood educators view the digital innovative value of such learning activities regarding instructional practices and innovative applications. It also examines the impact factor of their perception of instructional use (PIU) and instructional professional autonomy via digital learning activities. Based on the foregoing, the researcher proposes the following assumptions:

Hypothesis 2:"Digital Innovation Value" positively affects "Perception of Instructional Use".

Hypothesis 3:"Digital Innovation Value" positively affects "Instructional Professional Autonomy".

1.3. The impacts of digital innovative practices on perception of instructional use and instructional professional autonomy

The integration of competencies and application of practices for digital learning tools has a long and well developed history. We are still concerned and focused on the continuous efforts regarding the professional practices of the digital innovative practices and integration resources for such tools [25]. The changes in digital learning activities in teachers' innovation include not only the desire to use digital innovative practices and related applications in contemporary society but also the access to and use of innovative tools to enhance their implementation of multi-learning resources and sharing community platforms [26]. Teachers use such tools to construct their perception of instructional use and present instructional professional autonomy.

With the integrations of playfulness and encouragement, teachers can implement digital learning activities to stimulate students to achieve a predetermined learning goal and perform positively [27, 28]. They renew and update their instructional content according to social trends and pedagogical needs to help students improve their social networking learning and constructive ability [29]. With the learning scaffolding of ubiquitous learning resources and friendly feedback via digital learning activities, teachers help students to enhance their learning effectiveness and improve their competencies.

Innovative digital learning tools change the power relationship between knowledge subjectivity and mentoring traditional pedagogical structure, and early childhood educators can use digital innovative practices to educate and develop young children's learning potential [30, 31]. Digital learning activities help early childhood educators check their perception of instructional use in the process of young children's learning [32]. When early childhood educators agree with the innovative value of digital learning tools, they are willing to focus on the perception of instructional use about instructional strategies and pedagogical construction to reveal their instructional professional autonomy in such activities. Based on the foregoing, the researcher proposes the following assumptions:

Hypothesis 4:"Digital Innovative Practices" positively affects "Perception of Instructional Use".

Hypothesis 5:"Digital Innovative Practices" positively affects "Instructional Professional Autonomy".

1.4. The impacts of perception of instructional use on instructional professional autonomy and behavioral intention to use

Teachers' perception of instruction with digital learning activities affects their considerations of curriculum and instructional practices and shapes students' learning process and appropriate development [33, 34]. Teachers provide appropriate and diverse digital learning access in

accordance with the different characteristics of students and focus on their instructional and professional effectiveness to support students' learning performance.

Teachers with rich technical intention to use and a background in instructional experiences will demonstrate a positive and practical attitude towards the teaching value of such tools. They can draw upon their instructional professional autonomy to consider students' access and use of learning effectiveness and to engage students in the integration process, thereby improving their learning performance [35]. Based on their past instructional practices and behavioral experiences via digital learning activities, teachers design and plan instructional strategies with digital innovative practices to implement a multimodal and integrated learning model.

Masoumi [36] noted that most early childhood educators agree with the advantages and practicality of digital learning activities, but they show a different behavioral intention to use. Early childhood educators employ different digital learning activities to connect diversified integrations with actual and virtual learning situations and use the meaningful linkages of scientific and technological innovation with the instructional model to help young children improve their language literacy and learning performance [37, 38]. Based on professional judgment and subject-learning needs, they can choose the appropriate digital learning tools to plan and design technology applications. Based on the foregoing, the researcher proposes the following assumptions:

Hypothesis 6:"Perception of Instructional Use" positively affects "Instructional Professional Autonomy".

Hypothesis 7:"Perception of Instructional Use" positively affects "Behavioral Intention to Use".

1.5. The relationship between instructional professional autonomy and behavioral intention to use

Teachers use digital learning activities to effectively assist students in performing individualized and appropriate instructional strategies [39]. Their experiences in the use of assisted aids via digital learning tools enhance their competencies to design multiple methods to improve students' learning motivation and effectiveness.

Early childhood educators' perception of using digital learning activities mainly related with the full support of instructional professional autonomy [40]. They have professional autonomy to implement multiple access practices with digital learning activities. They are more confident in using digital learning resources to construct innovative instructional practices and learning environments to enhance the learning effectiveness of young children [41, 42]. With the professional autonomy of scaffolding and the support of self-learning characteristics and learning rhythms to engage in learning activities, early childhood educators can continuously implement digital learning activities to help young children independently engage in the learning process.

On the basis of instructional professional autonomy of digital learning activities, early childhood educators construct multi-sensory digital contexts with virtual reality integration

into learning situations to encourage young children to be curious and explore the actual world [43]. They employ professional thinking about the construction of multidimensional instructional applications with digital learning activities and improve their self-efficacy in the instructional profession and behavioral intention to use such tools. Based on the foregoing, the researcher proposes the following assumption:

Hypothesis 8:"Instructional Professional Autonomy" positively affects "Behavioral Intention to Use".

1.6. Study purposes

Therefore, it is important for early childhood educators to deeply explore their attitudes towards the innovative value and practices of digital learning activities, as well as their behavioral intention to use these tools in preschool. In this study, the researcher examined the factors and relationships about early childhood educators' attitudes towards the innovative value and practices with their professional autonomy and behavioral intention to use digital learning activities. The attitudes include digital innovative value, digital innovative practices, perception of instructional use, instructional professional autonomy, and behavioral intention to use involved in the considerations of early childhood educators on digital innovative pedagogical development and practices. The research model is shown in **Figure 1**.

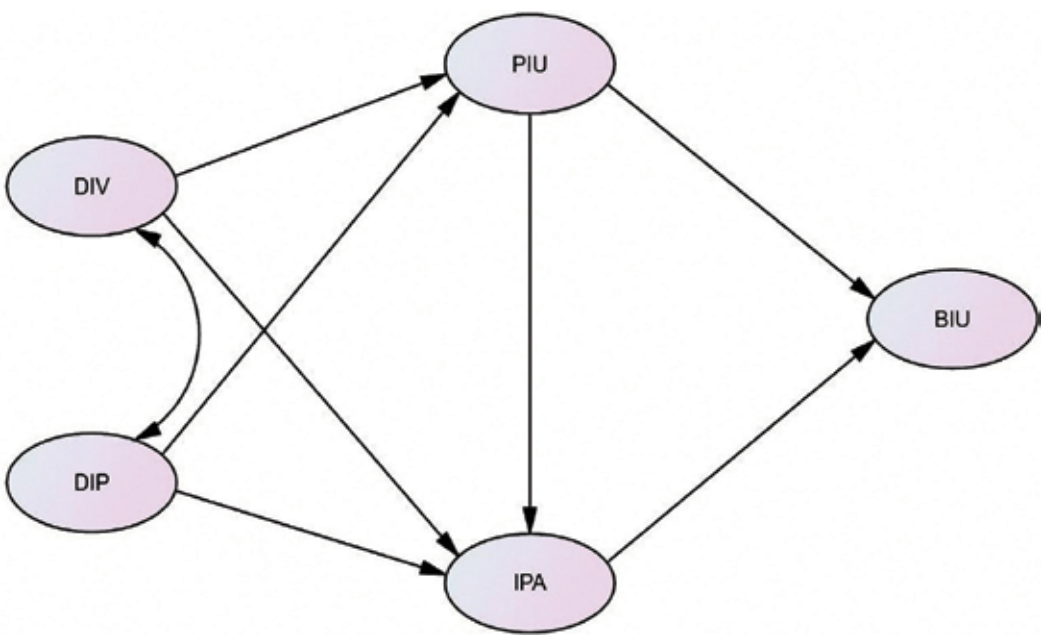

Figure 1. Research model.

http://dx.doi.org/10.5772/intechopen.70998

2. Methods

This study developed a questionnaire to survey early childhood educators in Taiwan regarding their attitudes towards innovative instruction and the integration of the digital learning activities for young children. The researcher used structural equation modeling to analyze the survey data and employed a two-stage approach to test the measurement and structural models of a theoretical model hypothesized in previous studies. Finally, the researcher examined the total effects of the hypothesized relationships between latent constructs in the responses.

2.1. Sample characteristics

A questionnaire was distributed to early childhood educators working in Taiwan to examine their behavioral intention to use digital learning activities to implement their innovative instruction and professional development. Based on the descriptive statistical from the Ministry of Education in Taiwan, there were 42,956 early childhood educators in the period of 2016–2017. The researcher estimated the number of sample based on empirical considerations and budgetary principles. This study had surveyed a random sample of early childhood educators in Taiwan. According to the suggestions of structural equation modeling, 600 questionnaires were distributed. The researcher used the telephone or email to contact the preschool to ask the early childhood educators to fill the questionnaire. After excluding early childhood educators with non-responses or missing values, the valid number of anonymous samples was 500, for a response rate of 83.33%. All respondents were informed about the purposes of this study and the procedures for informed consent, and their privacy and confidentiality were protected. The respondents in this reasonable sample size were composed of early childhood educators with divergent education levels and years of service. **Table 1** presents a summary of the sample demographics.

2.2. Measurement instrument

To assess the attitudes of early childhood educators towards innovative values and implementation of digital learning activities, instructional practices and professional autonomy, and behavioral intention to use digital learning activities for young children, the researcher implemented a Chinese questionnaire, the attitude survey of digital innovative instructional applications (DIIA), in this study. Based on the literature review and theoretical assumptions of this study, the researcher developed observed variables of the DIIA.

The researcher proposed the following five latent constructs for digital innovative practices and professional autonomy about digital learning activities in preschool: digital innovative value (DIV), digital innovative practices (DIP), perception of instructional use (PIU), instructional professional autonomy (IPA), and behavioral intention to use (BIU). The original surveying instrument included 25 observed variables (5 variables for each latent construct). The DIIA presented bipolar agree/disagree statements on a 5-point Likert scale (1 for most strongly disagree and 5 for most strongly agree). A detailed description of the five latent constructs is presented as follows:

1. Digital innovative value (DIV): assessing attitudes on the extent to which early childhood educators believe the value of digital learning activities for young children is an innovative pedagogy and provides more advantages in instructional practice.
2. Digital innovative practices (DIP): exploring attitudes on the extent to which early childhood educators employ digital learning activities to provide young children with multiple and meaningful instructional practices.
3. Perception of instructional use (PIU): investigating the extent of early childhood educators' perceptions of the instructional practices and pedagogical experiences to implement digital learning activities for young children.
4. Instructional professional autonomy (IPA): assessing the attitudes on the extent to which early childhood educators' present professional autonomy to design digital learning activities and choose appropriate instructional resources for young children.
5. Behavioral intention to use (BIU): assessing attitudes on the extent to which early childhood educators' present behavioral intention to use digital learning tools to implement instructional activities for young children.

Respondent characteristic	Number	Percentage
Gender		
Male	35	7.0
Female	465	93.0
Age		
Under 30	153	30.6
31–40	182	36.4
Over 41	165	33.0
Education level		
High school	28	5.6
University	455	91.0
Graduate school	17	3.4
School type		
Public	159	31.8
Private	341	68.2
Job		
Principle	14	2.8
Director	65	13.0
Teacher	363	72.6
Assistant	58	11.6

Respondent characteristic	Number	Percentage
Years of service		
Under 5	115	23.0
6–10	127	25.4
11–15	185	37.0
16–20	62	12.4
Over 21	11	2.2
Duration of digital instructional use		
Under 5	113	22.6
6–10	169	33.8
11–15	153	30.6
16–20	40	8.0
Over 21	25	5.0

Table 1. Sample demographics.

2.3. Data analysis

The researcher employed a two-stage approach to test the measurement model and structural model of a theoretical model hypothesized in previous studies [44–46]. In the first stage, the measurement model was analyzed using Amos 20.0 with the raw data as the input. The CFA of the observed variables and latent constructs were tested in the measurement model. The researcher used the estimations of individual variables' factor loadings, statistical significances, and measurement errors to test the hypothesized pattern of relationships between observed variables and latent constructs. The fit indices reported in this study were χ^2, χ^2/df, RMSEA, SRMR, CFI, NFI, GFI, TLI, and IFI. CR and AVE were used to estimate reliability and convergent validity of the latent constructs. In the second stage, the researcher assessed the estimations of model fit, path coefficients, and measures of explained variances in structural model. Examinations of the total effects of hypothesized relationships between the latent constructs were used to test the research hypotheses.

3. Results

3.1. Measurement model

According to the results of factor loadings and model fit indices per latent construct, a reflective variable was retained only when it loaded greater than 0.70 on the relevant construct, suggesting an acceptable model fit. Thus, the initial 25 observed variables were reduced to 20 variables (**Table 2**).

Latent construct	No.	Observed variables
Digital innovative value (DIV)	V1	I think it is an innovative idea to implement digital learning activities for young children
DIV	V2	I think digital learning activities are an interesting instructional model for young children
DIV	V3	I think there are more advantages of digital learning activities for young children
DIV	V4	I think digital learning activities for young children can change the traditional instructional model
Digital innovative practices (DIP)	V5	I employ digital learning activities for young children to implement new instructional ideas.
DIP	V6	I employ digital learning activities for young children to try multidimensional instructional models
DIP	V7	I share my innovative experiences of implementing digital learning activities for young children with my colleagues
DIP	V8	I integrate multiple learning resources into digital learning activities for young children
Perception of instructional use (PIU)	V9	I agree with the instructional objectives of digital learning activities for young children
PIU	V10	I am willing to plan the instructional design of digital learning activities for young children
PIU	V11	I like to prepare the relevant resources for digital learning activities for young children
PIU	V12	I will try to implement digital learning activities for young children
Instructional professional autonomy (IPA)	V13	I have the professional autonomy to design digital learning activities for young children
IPA	V14	I have the professional autonomy to implement digital learning activities for young children
IPA	V15	I have the professional autonomy to choose appropriate resources for digital learning activities for young children
IPA	V16	I have multiple instructional opportunities to implement digital learning activities for young children
Behavioral intention to use (BIU)	V17	I have a good experience of implementing digital learning activities for young children
BIU	V18	I would like to continue to share my experience with digital learning activities for young children
BIU	V19	I am willing to continue to implement digital learning activities for young children
BIU	V20	I am willing to continue to design digital learning activities for young children

Table 2. Retained variables on the questionnaire.

The means of the retained 20 observed variables range from 3.81 to 3.99, and SD range from 0.67 to 0.82. Skewness measures range from −0.71 to −0.37 for these variables, and kurtosis measures range from −0.21 to 1.18. The standardized factor loadings on each variable range from 0.80 to 0.94, and measurement errors range from 0.11 to 0.36. All observed variables had positive values of measurement error variances, and no standard errors greater than 1.0 were observed. The researchers used the bootstrapping method based on 5000 samples to test the level of significance of the standardized factor loadings. The p values of statistical significance on the DIIA for all selected variables are less than 0.05. These statistics showed that the measurement model had a reasonable degree and did not violate the model identification rules.

Figure 2 shows the structure of latent constructs for the measurement model with the standardized parameter estimates. This model was supported by the model fit statistics: $\chi^2 = 396.64$ ($p < 0.001$), $\chi^2/df = 2.48$, RMSEA = 0.05, SRMR = 0.03, CFI = 0.98, NFI = 0.96, GFI = 0.93, TLI = 0.97, and IFI = 0.98. The fit indices by CFA indicate that the measurement model was acceptable.

The Cronbach's alpha, CR, and AVE values of each latent construct of the DIIA ranged from 0.94 to 0.95, from 0.94 to 0.96, and from 0.78 to 0.84, respectively, as shown in **Table 3**. The correlation of the two latent constructs ranges from 0.54 to 0.74. The correlation coefficient between each construct pair was less than the respective square root of the AVE. These measurements depict the reasonable degree of reliability, convergent validity, and discriminant validity of the latent constructs with internal consistency. The results showed that the DIIA measurement model has a high reliability of internal consistency.

3.2. Structural model

Based on the good fit of the hypothesized measurement model to the sample data, the researcher used path analysis to test the research hypotheses. **Figure 3** presents the structural path of latent constructs and path coefficients with the standardized parameter estimates. The model fit indices also obtain an acceptable fit with the sample data: $\chi^2 = 463.44$ ($p < 0.001$), $\chi^2/df = 2.86$, RMSEA = 0.06, SRMR = 0.06, CFI = 0.97, NFI = 0.96, GFI = 0.91, TLI = 0.97, and IFI = 0.97. The model fit statistics also support the structural model. The researcher then proceeded with testing the study hypotheses.

The standardized regression coefficients and the direct effects and measures of the explained variance are shown in **Figure 3**. The DIV and DIP constructs jointly explain 38% of variance in the PIU construct, corresponding to a standardized regression coefficient of 0.33 and 0.36, respectively. The DIV, DIP, and PIU constructs jointly explain 64% of the variance in the IPA construct, corresponding to standardized regression coefficients of 0.23, 0.48, and 0.23, respectively. The PIU and IPA constructs explain 55% of the variance in the BIU construct, corresponding to a standardized regression coefficient of 0.38 and 0.44, respectively. All path coefficients were highly statistically significant ($p < 0.05$) by performing a bootstrap with 5000 resamplings.

According to the results, early childhood educators with positive attitudes towards the innovative value of digital learning activities for young children had positive perceptions about the innovative practices of digital learning applications in preschool. They considered the digital learning activities as an interesting and innovative pedagogy and employed this model

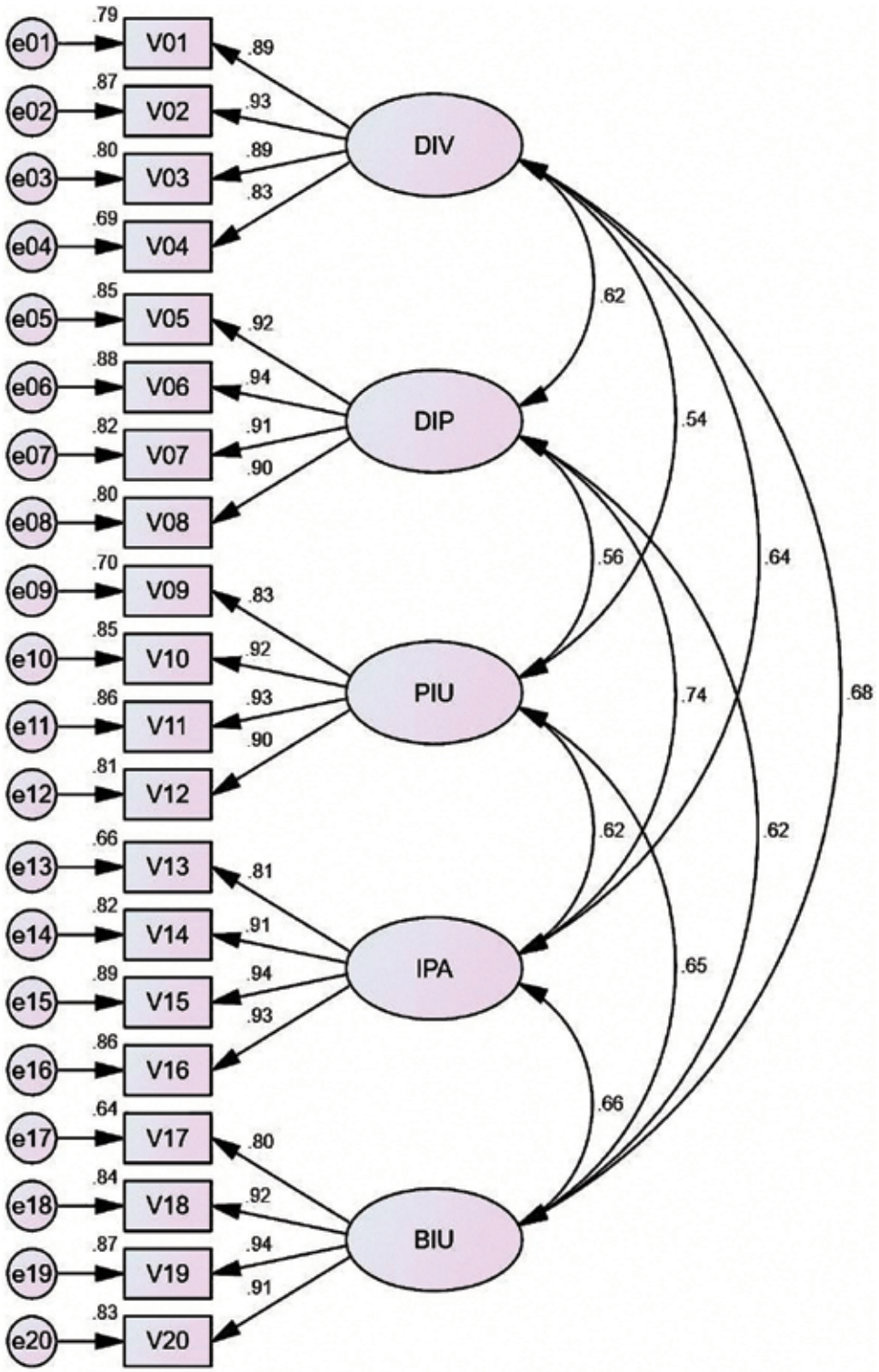

Figure 2. Measurement model.

Latent construct	Cronbach's alpha	CR	AVE	(1)	(2)	(3)	(4)	(5)
DIV (1)	0.94	0.94	0.78	0.88				
DIP (2)	0.95	0.96	0.84	0.62	0.92			
PIU (3)	0.94	0.94	0.80	0.54	0.56	0.89		
IPA (4)	0.94	0.94	0.81	0.64	0.74	0.62	0.90	
BIU (5)	0.94	0.94	0.80	0.68	0.62	0.65	0.66	0.89

Note: The square root of the AVE of two latent constructs is given on the diagonal, and the correlation coefficient is given on the below diagonal.

Table 3. The Cronbach's alpha, CR, AVE, and correlation matrix.

to implement innovative digital practices for young children's learning activities (H1, the correlation of the DIV and DIP is 0.62). Early childhood educators with positive attitudes towards the innovative values of digital learning activities had more willingness and preferences about such models to plan and use digital learning activities to help young children advance their learning efficiency and improvement in preschool (H2, a standardized total effect of DIV on PIU is 0.33). When they had more experiences with innovative practices of digital learning activities for young children, they had positive intentions to access or adopt this model to design and implement young children's instruction (H3, a standardized total effect of DIP on PIU is 0.30). These hypotheses showed positive relationships among DIV, DIP, and PIU, providing support for H1, H2, and H3.

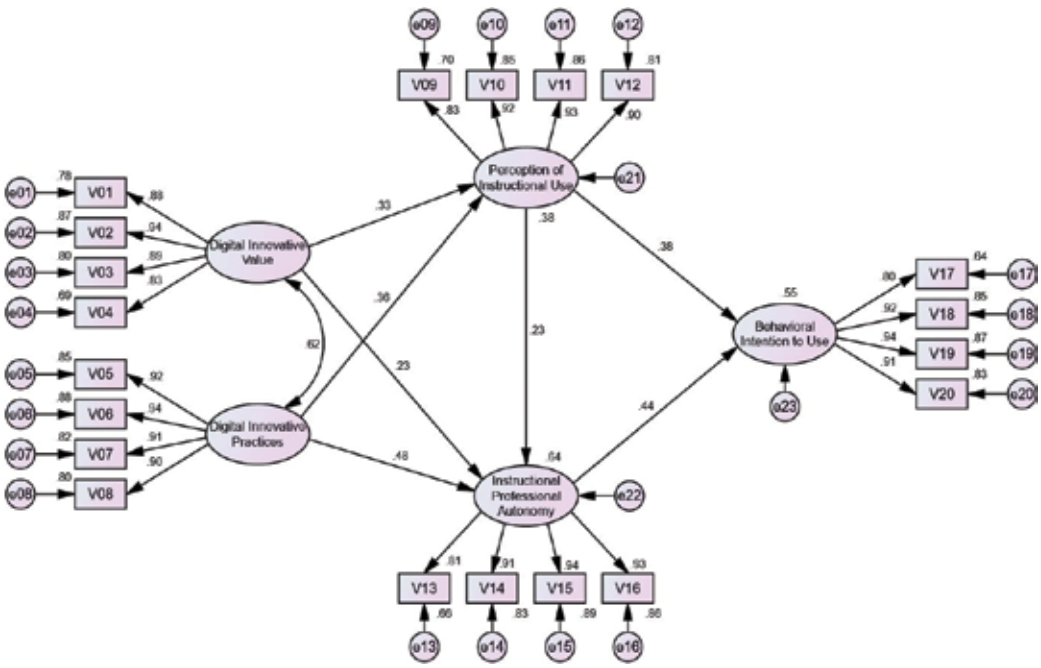

Figure 3. Structural model.

Early childhood educators' perceptions of the professional autonomy when designing instructions and choosing appropriate learning resources through digital learning activities for young children were determined by their attitudes towards innovative ideas and interesting instructional applications of digital learning activities in preschool (H4, a standardized total effect of DIV on IPA is 0.36). Their preferences about digital innovative practices and experiences were viewed as predictors to explain their professional autonomy in the implementation of digital learning activities for young children (H5, a standardized total effect of DIP on IPA is 0.56). These relationships were positive and significant, providing support for H4 and H5.

Early childhood educators' positive perceptions about the planning and implementation of digital learning activities for young children affected their attitudes towards their professional autonomy about multiple instructional access and pedagogical design (H6, a standardized total effect of PIU on IPA is 0.23). They also suggested that the perceptions of instructional use in digital learning activities for young children enhanced their behavioral intention to use and willingness to continuous implement such digital pedagogy (H7, a standardized total effect of PIU on BIU is 0.48). In addition, early childhood educators' perceptions about instructional professional autonomy positively affected their behaviors and experiences with digital learning activities for young children. This suggested that early childhood educators' attitudes towards the instructional usefulness and professional autonomy of digital learning activities could increase their continuous behavioral intention to use such a model to develop young children's learning performance (H8, a standardized total effect of IPA on BIU is 0.44). The results of path coefficients and hypothesis testing supported H6, H7, and H8. The statistical significance tests are reported at $p < 0.05$ for all measures by performing a bootstrap with 5000 resamplings.

The value of the total effect of DIP on IPA was the highest among the study hypotheses (standardized total effect of 0.56), suggesting that they generally agreed upon the value of instructional innovations and innovative applications of digital learning activities for young children and that the implementation of digital learning activities improved their professional autonomy in instructional practices to represent their integration competencies and professional pedagogical practices. They also believed that innovative instructional practices with digital learning tools could encourage their professional instructional approach to enhance their pedagogical performance and professional literacy.

A high measure of total effect was the relationship between PIU and BIU (standardized total effect of 0.48). This result implied that early childhood educators not only considered the practical applications of the digital learning activities on instructional design and pedagogical practices for young children but also preferred presenting continuous behavioral intention to try or employ such a model to construct innovative preschool pedagogy to articulate their instructional experiences.

The total effect of PIU on IPA remained relatively low compared to the other hypotheses (standardized total effect of 0.23). The researcher proposed a lower relationship between PIU and IPA through the digital learning activities compared to the innovative instructional advantages and appropriate learning practices. Early childhood educators presented relatively less

engagement on instructional effectiveness and professional autonomy with digital learning activities for young children in preschool. They perceived the usefulness and opportunities for practical instruction with digital learning activities and were less concerned about professional autonomy of digital instructional practices.

4. Discussion and conclusion

The innovative practices of digital learning applications help early childhood educators provide young children with multiple learning opportunities to understand instructional materials and develop their appropriate cognitions. They employ such tools with innovative values and practices to design multiple supporting pedagogies to advance young children's learning development. Early childhood educators use digital learning tools to design innovative instructive practices for young children to improve their learning competence. They implement meaningful innovative pedagogy to expand young children's learning experiences and performance with digital instruction and developmentally appropriate practices.

The integration of digital learning tools into innovative instructional activities helps early childhood educators effectively represent their professional autonomy to design and implement such pedagogy to improve young children's learning motivations by providing access to learning opportunities to advance their learning awareness and social interactive literacy. When early childhood educators agree with the innovative value of digital learning activities and useful experiences of implementing such digital instructions, they have positive preferences for professional construction to educate young children with appropriate instructional strategies. They also have more positive attitudes towards implementing innovative digital learning activities for young children with the continuous behavioral intention to use. The contribution of this study is the examination of hypothesized relationships between the latent constructs and early childhood educators' attitudes towards the innovative value and practices of integration of digital learning tools into young children's instructional activities using a questionnaire survey.

4.1. Theoretical implications

This study explored early childhood educators' perceptions of innovative pedagogy using digital instructional activities for young children. The researcher found significant relationships between latent constructs on the DIIA by structural equation modeling. The researcher found that early childhood educators' attitudes towards the innovative values, practical practices, and professional autonomy via digital learning activities affected their behavioral intention to use such tools. Though some early childhood educators are interested in the applications of digital learning tools, they do not completely apply or embed digital learning tools into their instructional practices. The reason is that early childhood educators' perceptions of instructional use, technology literacy, and instructional experiences of digital learning activities affect their professional competence and their behavioral intention to use. This result is notable because it corresponds to most studies on the hypothesized relationship among the latent constructs.

Based on the above results, early childhood educators' perceptions about the innovative value of digital learning activities and instructional practices, as well as their pedagogical use and professional autonomy of instructional competence, should be the key factors in their behavioral intention to use this instructional model for early childhood educators in preschool. Digital learning activities improved their instructional effectiveness using innovative practices and professional autonomy. They acknowledge the innovative value of such a model when designing meaningful teaching activities to develop young children's learning performance.

Early childhood educators have positive perceptions about the implementation of such teaching models based on the positive learning effectiveness and feedback provided from digital learning activities. Their perceptions of innovative value via digital learning activities affect early childhood educators' preferences for the instructional applications of innovative digital tools. The innovative value of digital learning activities is related not only to the innovative diffusion of information technology in the field of education but also to the thinking model of the innovative application of such activities for early childhood educators. Digital learning activities provide early childhood educators with more possibilities to construct innovative learning practices and multiple instructional alternatives. To improve young children's learning outcomes, the integration of innovative digital practices into the construction of appropriate instructional learning environments is important for young children's learning performance.

The results also showed that early childhood educators with positive attitudes towards the innovative applications and instructional practices via digital learning activities had more professional autonomy to employ appropriate digital learning tools on the basis of pedagogical objectives. When early childhood educators focus on the digital innovative value and perception of instructional use in multiple pedagogical possibilities, they can eliminate the previous unified, surface teaching model and attend to digital access, and multimodal instruction to implement innovative instructional pedagogy. The use of digital learning activities transforms their traditional teaching styles and establishes the newer perception of instructional use with multiple learning activities. They can plan and design the innovative and playful curriculum or learning activities with digital applications to help young children engage in appropriate instruction to advance their learning performance and effectiveness.

4.2. Practical implications

For early childhood educators, the multidimensional approach to the use of digital learning activities in preschool is not only to learn how to use this alternative pedagogical model to present their instructional effectiveness and professional competence but also to open up the possibility of innovative instruction with digital learning activities to develop young children's performance of cognition, affection, and skill.

Early childhood educators must follow and engage with contemporary innovative trends to learn to use digital learning tools and integrate them into instructional activities for young children. Young children interested and engaged in digital learning activities to access a wide range of natural and social resources, and they construct their unique viewpoints on human life and social exploration based on such instructions. Early childhood educators can construct

a digital learning environment through innovative instructional models to help young children independently and efficiently complete their reading tasks.

They can employ the innovative learning functions of digital learning tools to establish a shared learning environment, and cooperate with professional partners to construct appropriate instructional practices and present their pedagogical effectiveness. They can also use an open and diverse pedagogical method to provide friendly and easily accessible environments that attract and motivate young children to learn in a novel and diverse way and assist them engaging and participating in digital learning activities.

Digital learning tools help early childhood educators apply effective and useful methods to use professional development knowledge and share or communicate, using their teaching experience, how to learn from designing high-quality instructional practice, and real-time examination of its pedagogical alternatives. They can also employ such a model to enhance their effectiveness in the instructional process to advance young children's performance using their own professional autonomy.

In the digital space, early childhood educators can share and exchange their innovative teaching ideals and practices to construct their own professional autonomy in using these instructional practices via digital learning tools. They can use digital learning tools to build a virtual community for professional interaction and discuss their innovative instructional experiences. In addition, they can articulate the professional empowerment of such digital applications to implement appropriate instructional and professional pedagogy with the dimension of the digital learning supporting and scaffolding pedagogy.

To provide young children with diverse and appropriate learning environments and enhance the adaptability of the instructional model, early childhood educators can employ professional teaching practice to reflect critically and develop dialectical considerations about the access to and use of digital learning tools. They can use such tools to reflect and share individual professional development and practical experience. They can also collaborate with other educational partners to participate in communities and collectively cooperate to shape their critical pedagogical consciousness and instructional professional autonomy.

Early childhood education can use digital learning tools to construct their instructional community for professional awareness. They can exchange their different ideas regarding the application of such innovative pedagogical tools to develop continuous behavioral intention to use such strategies. They can apply their professional pedagogical knowledge and experiences within the digital learning community to consider more meaningful pedagogy and strengthen their confidence and willingness to use the digital learning tools into the instructional activities.

4.3. Recommendations for further study

The integration of applications of digital innovative practices is not just to replace traditional teaching models or ignore the importance of teachers' role in educating students. More importantly, they can employ the innovative applications of digital learning activities to open up a wide range of multiple instructional perceptions and professional autonomy to develop young children's learning performance with appropriate pedagogical alternatives.

Measuring individuals' attitudes towards digital innovative instructional applications with adequate statistical analysis is an important issue in research on early childhood educators' innovative pedagogy and behavioral intention to use digital learning tools. This study attempts to begin to construct and test the configuration of innovative pedagogy and related instructional practices in preschools. Future studies can use the DIIA developed in this study to test innovative pedagogical perceptions and practices held by various individual demographics, different countries, or cultural groups to find the difference with comparative educational analysis.

The researcher also hopes to further study issues related to using innovative digital learning activities to professionally develop early childhood educators' pedagogical literacy and their behavioral intention to use such innovative models. New latent constructs or observed variables can be added to DIIA to further explore early childhood educators' thoughts on the hypothesized relationships between innovative instructional practices and professional behavioral intent to use and to articulate multiple theoretical or innovative perspectives to explore this issue in preschools.

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Chapter 4

A Bibliometric Study on the Use of Virtual Reality (VR) as an Educational Tool for High-Functioning Autism Spectrum Disorder (ASD) Children

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Additional information is available at the end of the chapter

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Abstract

The use of virtual reality (VR) as an educational tool for autism spectrum disorder (ASD) children is a research field that started some 20 years ago. ASD is associated with deficiencies in communication and social interaction, as well as restricted and repetitive behavioural patterns, according to the fifth edition of the diagnostic and statistical manual of mental disorders (DSM-5). By using the ISI Web of Knowledge as the reference data basis, we perform a bibliometric study of the use of VR as an educational tool for high-functioning ASD children. By this study we can quantify, on the one hand, the up to day importance of the different types of VR applied to this field: immersive or non-immersive, as well as the use of human or agent avatars. On the other hand, we can also differentiate amongst those interventions that work on emotional and social competences. The analysis of periods of research scarce, research abundance and research trends provides a dynamic view of the strategies used in this field in the last 20 years and suggests future lines of research.

Keywords: virtual reality, ASD, bibliometric, education

1. Introduction

With constantly increasing prevalence rates, greater than 1% in countries such as USA [1], students with autism spectrum disorder (ASD) gradually acquire higher visibility, demanding research and development that provides new resources and strategies that meet their educational needs.

The fifth edition of the diagnostic and statistical manual of mental disorders (DSM-5) [2] characterizes ASD defining two main diagnostic criteria: the first category refers to impairments in

communication and social interaction whilst the second considers restricted and repetitive behavioural patterns. The DSM characterization of autism disorder has been traditionally accepted and considered a reference worldwide, but it has changed significantly throughout the different editions of the DSM since 1980. The DSM-III [3] was the first manual introducing "Infantile Autism" as a category within the "Pervasive Developmental Disorders" (PDD) domain. Seven years later, the revision of the DSM-III [4] renamed this category as "Autistic Disorder", eliminating age limits to its definition but still showing discrepancies with the International Statistical Classification of Diseases and Related Health Problems (ICD) criteria [5]. In 1994, the DSM-IV [6] was presented, maintaining "Autistic Disorder" as a PDD category, together with Rett Syndrome, Childhood Disintegrative Disorder, Asperger Syndrome and Pervasive Developmental Disorder—Not Otherwise Specified (PDD-NOS). A triad of impairments was defined, including social interaction deficits, verbal and non-verbal communication deficits and restricted and repetitive behavioural patterns, achieving great consistency with ICD criteria. The introduction of DSM-5 in 2013 eliminates all the sub-categories within PDD and the so-called ASD emerges as a new domain that encompasses the whole spectrum, in an effort to avoid stigmatization and controversy related to an excessive labelling. The aforementioned two main diagnostic criteria replaced de triad defined by the DSM-IV and several levels of severity were defined in order to distinguish between different profiles of the vast casuistry within the spectrum.

On the other hand, the use of virtual reality (VR) as an educational tool for students with ASD is a line of research that has been developing for more than two decades. Researchers agree that RV technology is especially suited to the educational needs of individuals with ASD [7–10]. This is so because through VR we can recreate any situation and social context, adapting and customizing it to the sensorial preferences of the student [11], as well as defining, controlling and manipulating the level and number of characteristics of verbal and non-verbal communication [12]. In addition, VR technology is aligned with the visuospatial preference that is generally identified as a strength and main learning channel of students with ASD. Furthermore, it allows for a systematic and repeated practice of tasks in very similar contexts to the real ones in the absence of potential risks [9, 10], also minimizing the associated fatigue to its realization in real contexts [13]. A typical discussion with regard to VR technology has to do with the level of immersion and sense of presence that it provides. Generally, immersive VR implies devices capable of displaying virtual environments that, at least visually, surround the user. This is normally identified with head mounted displays (HMD) or big screens or projections enclosing the user (CAVE). Nevertheless, some authors [14] distinguish different levels of immersion considering not just the visual experience but also the interaction with the virtual world that the system provides. Systems with movement recognition or data gloves allowing touching or moving virtual elements provide a quite remarkable sense of presence and are also considered immersive, even if visually they are not. Desktop VR, on the other hand, does not provide a great sense of presence, connecting the user with the virtual world through a window, generally the screen of a regular computer. Most of the research to date in this field has used desktop or non-immersive RV [15–18]. Although both non-immersive and immersive RV are shown as valid tools to serve as means in various areas of learning [19], both the realism of the virtual educational environment and the behaviour of the avatars or characters

with whom the user interacts socially, seem crucial to generate a sense of social presence, an aspect whose intensity is key for the experience of educational VR to be effective and transferable to the real world [20, 21].

Precisely, the interaction with other avatars within the virtual environment shows two completely opposed strategies [22]. Most of the research on the topic uses individual interaction [23–28], where the virtual avatars are computerized agents. This means that some kind of algorithm has been designed for them to react depending on the user's response, choosing a pre-designed answer. Unless an advanced artificial intelligent system is implemented it is difficult for this kind of strategy to recreate a fluid, realistic and natural social interaction. The other strategy is the so-called collaborative interaction, where real people are behind the virtual characters that interact with the user [29–35]. These human-avatars, depending on the features provided by the VR system, generally provide a more flexible, realistic and natural social communication, but needs for a real person to be behind the machine.

As for the abilities trained using VR technology for individuals with ASD, we can differentiate between research that promotes the learning of social skills [36–40], like safety protocols, socially accepted behaviour or motor and cognitive skills, and research that works on improving emotional competences [41–44], like facial cues and joint attention, emotions recognition and regulation or non-verbal language.

The present work tries to obtain a dynamic view of the scientific production on this field for the last 20 years, giving special attention to the main research strategies trends including type of VR used, type of virtual interaction applied and types of both social and emotional competences that these studies tried to improve.

The aim of the work presented here consisted in carrying out a bibliometric analysis about the state of scientific production with regard to the use of virtual reality (VR) as a learning tool for individuals with high functional autism spectrum disorder (ASD).

2. Method

In this paper we present a bibliometric study of the scientific production about the use of virtual reality as a tool for improving the behaviour of children with high functional autism (HFA) or Asperger. The time window used is 1996–2017, given that our search did not found contributions on this topic before 1996. The typical descriptive-retrospective design [45], following the usual stages of examination [46] was carried out, allowing us to select and organize the documentation.

2.1. Participants

The bibliographic consultation of the following databases: Web of Science, BIOSIS Citation Index, Current Contents Connect, Inspec, Medline, CINAHL and E-Journals, gave an initial

sample formed by 247 papers, published between 1996 and 2017. This initial sample was object of a work of individual reading, analysis of the data extracted, selection and classification throughout 2017, obtaining a final sample of 127 papers. The units of analysis were the computerized papers in English language, which dealt with the subject of virtual reality, autism, ASD, HFA and Asperger.

2.2. Design and procedure

We started by making a search for the available documents introducing the terms "Virtual and autism" or "Virtual and ASD" or "Virtual and Asperger" or "Virtual and HFA" in the topic search box, filtering by title, obtaining 247 results. The main research areas involved are, psychology, computer science, rehabilitation, education and educational research, engineering, communication and neurosciences. We did not filter by publication years, so that the window was automatically selected, from 1996 until 2017.

The next step was the traditional in bibliometric studies: (1) organization of the information according to the variables defined in **Table 1**. After discarding those papers duplicated or not related to the topic of research, a final sample of 127 papers was obtained; (2) selecting the bibliometric indicators specified in **Table 2**, that help to provide a first classification and quantification of the documents under study, differentiating between research documents and reviews, the type of virtual reality used, the type of interaction between user and avatar and whether the research aims to influence social or emotional competences; (3) finally, in order to provide a deeper picture of the main strategies of research conducted so far, a special classification was made defining both social and emotional skills sub-domains, as shown in **Table 3**.

Figures with descriptive statistics and frequency distribution are presented in order to systematize the selected variables and indicators.

Variables	Description
Paper	Title, year of publication, topic treated
Author/authors	Name of author/authors, professional profile, institution or centre where they work
Journal	Title of journal, thematic field of journal, database, impact factor, external reviewers
Language	English
Country	City and country
Competences treated	Social skills or emotional skills
Type of VR	Immersive VR or desktop VR
Type of virtual interaction	Individual or Collaborative (Avatar-Agent or Avatar-Human)

Table 1. Variables selected in the classification of documentary information about VR & ASD.

Bibliometric indicators	Description
1. Time-based scientific production	Evolution of scientific production related to VR & ASD through papers published during the period 1996–2017
2. Most productive journals in the field	Type of journals
3. Productivity by authorship and co-authorship	Most productive authorship and periods
	Most productive authors
4. Productivity rate with regard to citations	Number of citations and rate of citations per year received by the different works, placing special emphasis on the 10 most-oft-cited papers
5. Most productive countries	Countries with the highest productivity within the VR & ASD thematic field
6. Productivity related to main research strategy domains	Classification of productivity in the field with regards to social or emotional skills research, the use of desktop VR or immersive VR, the development of Individual or Collaborative interaction or the making of reviews
7. Research on intervention in social skills and emotional competences	Classification according to sub-domains of intervention in social skills and emotional competences amongst students with ASD using VR

Table 2. Specific bibliometric indicators about scientific production in relation to VR & ASD.

Social skills	
Safety	Safety measures like crossing the street, respecting traffic signals, driving or fire safety directives
Socially accepted behaviour	Trains appropriate behaviour in things like taking turns, respecting a cue, ordering in a restaurant, taking the bus…
Motor and cognitive skills	Depth perception, gestures, motor skills, sensory regulation, spatial navigation, visuospatial skills, audio-visual skills…
Emotional skills	
Facial cues and joint attention	Ability to process facial expressions, shifting attention, eye contact, engagement…
Emotions recognition and regulation	Identification of the emotional state of others (ToM), empathy, identification of their own emotional state, emotional regulation…
Non-verbal language	Body and facial non-verbal language, physiological signals

Table 3. Social and emotional skills sub-domains research strategies in relation to VR & ASD.

3. Results

Next we present the results obtained with the final sample of 127 papers according to the variables and indicators established.

3.1. Scientific production by year

Figure 1 shows the scientific production by year. This field started in 1996, and after a period with very few contributions, started again in 2002, progressively growing up to 2016. This growth is more pronounced from 2010 (5.5%), with a single year with a valley, 2012 (0.8%). The period between 2010 and 2017 comprises 80.4% of the papers on the subject. A maximum of 26 publications is reached in 2016, representing 20.5% of the total number of contributions.

3.2. Most productive journals in this thematic field

As **Figure 2** shows, the 6 most productive journals in this field out of the 84 results found are the following: Journal of Autism and Developmental Disorders (14.8%); Universal Access in Human-Computer Interaction (International Conferences) (8.6%); Computers & Education (3.9%); IEEE Transactions on Neural Systems and Rehabilitation Engineering (3.1%); Autism (2.3%) and Computers in Human Behavior (2.3%), all of them with at least 3 papers each. They cover 35.2% of the total of publications.

In the case of Journal of Autism and Developmental Disorders, 84.21% of the papers were published between 2010 and 2017—the most productive period for this thematic field. As for Universal Access in Human-Computer Interaction, 100% of its papers correspond to the International Conferences carried out between 2013 and 2016. The third most productive journal, Computers & Education, published 80% of its papers in the aforesaid period too.

3.3. Productivity by authorship and co-authorship

Figure 3 shows that works written by 2, 3, 4, 5 and 6 authors account for 71.6% of the whole sample studied; and a special mention needs to be made of papers with 3, 4 and 6 authors, which represent 47.2% of the sample. Importantly, 8.7% of the papers had 9 or 10 authors, something relatively strange, insofar as our analysis refers to a very specific subject where research tends to be carried out by small work teams.

Figure 4 shows which are the most productive authors, like Parsons, participating in 13 papers, 9 of them as first author, Lahiri, co-author of 10 papers, 7 of them as first author, Bekele, who shares 9 papers, 7 of them as first author and Strickland, involved in 5 papers, all of which as first author.

3.4. Productivity rate with regard to citations

Figure 5 shows the total number of citations received by the sample of 127 papers selected, distributed by their year of publication. 2011 is the year with most citations (14.5%), probably because many of the state-of-the-art reviews were published within this year. 2013 (12.9%) and 2002 (9.8%) follow 2011 as the years with most citations so far. Nevertheless, the real relevance of these figures depends on both the number of papers published every year and how old these papers are. The more years a paper has been available the more opportunities it had to be cited.

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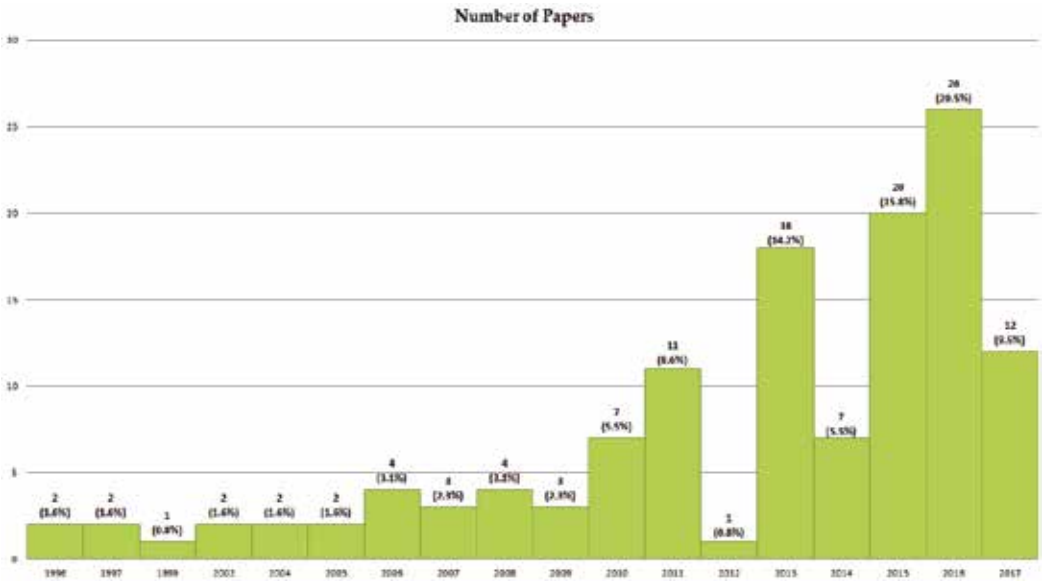

Figure 1. Number of papers on VR & ASD from 1996 to 2017.

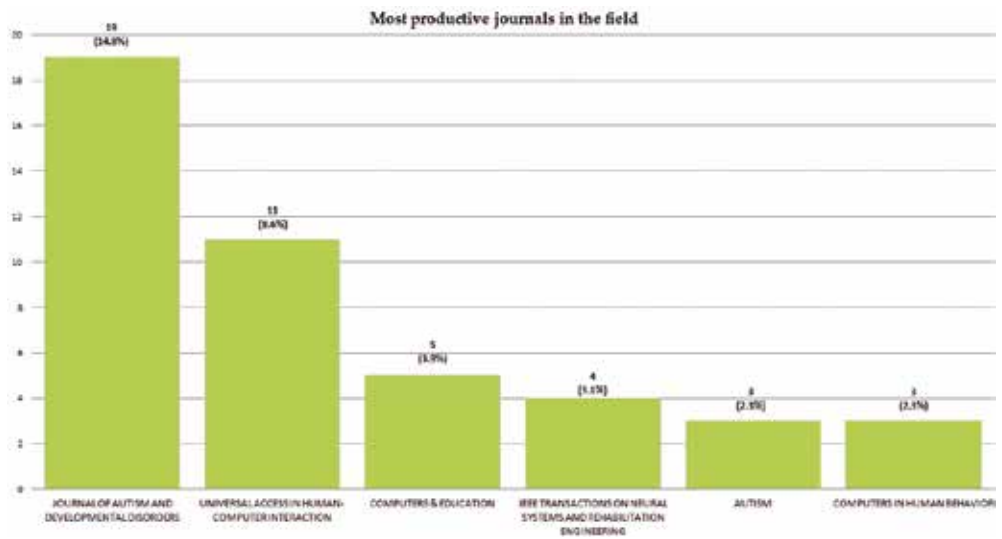

Figure 2. Six most productive Journals in thematic field.

Figure 6 depicts a more accurate picture of the productivity rate regarding to citations by showing the number of citations by year divided by the age of the papers cited. Citations ratio clearly grows from 2010 to date, with the only exception of 2012, a year strangely weak in research on this field. Even when 2013 (19.6%) and 2011 (14%) are still the years with best figures, the period from 2010 to 2017 comprises 76.9% of citations ratio, accumulating only 46.7% of total citations.

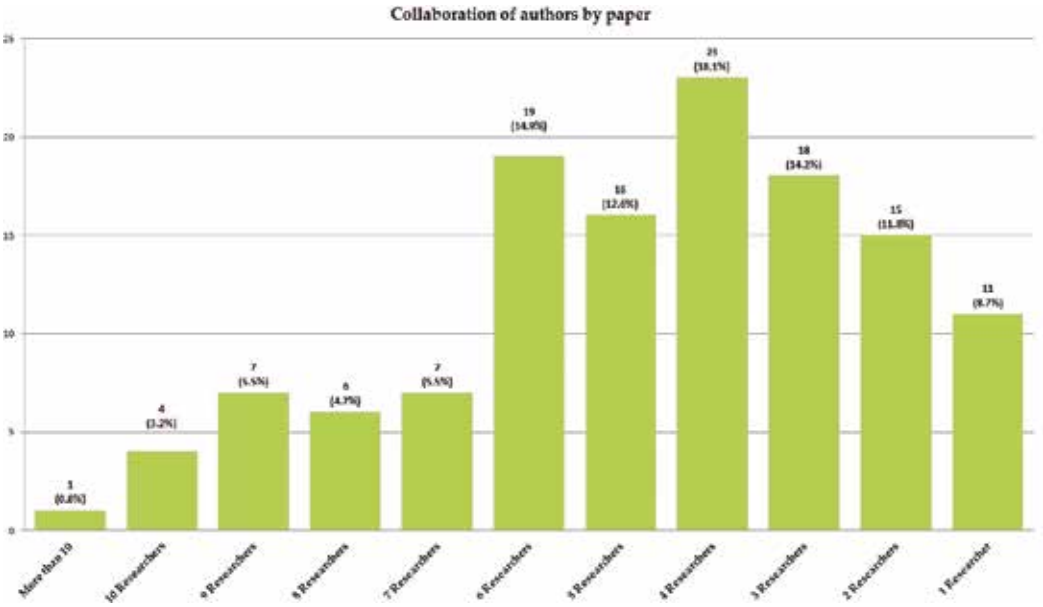

Figure 3. Collaboration of authors by papers.

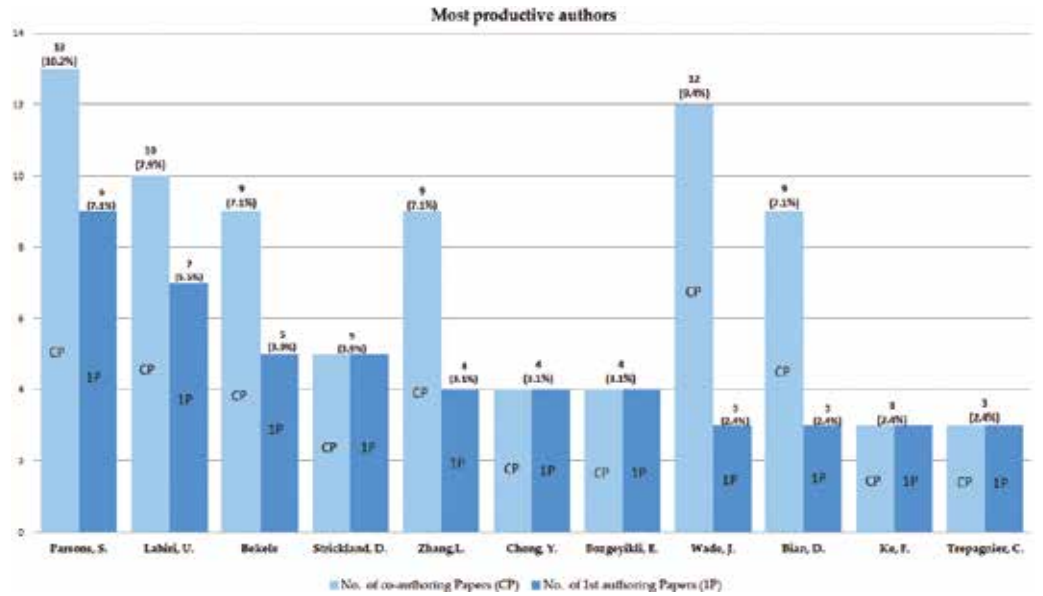

Figure 4. Most productive authors.

In **Table 4** we present the list of five papers that received more citations to date [9, 16, 24, 47, 48] together with the five papers with better citation ratio to date [16, 21, 28, 31, 49].

Only 1 out of the 5 most cited papers [16], with 254 citations, is part of the 5 papers that show a better citation ratio so far, showing a mean of 26.7 citations per year. The paper with most

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total citations is a review [9], with 307 citations, whilst the other 4 most cited are research papers on improving social skills for ASD individuals using VR [16, 24, 47, 48], with 254, 205, 187 and 185 citations as shown in **Table 4**. The paper with best citation ratio [31], with a mean

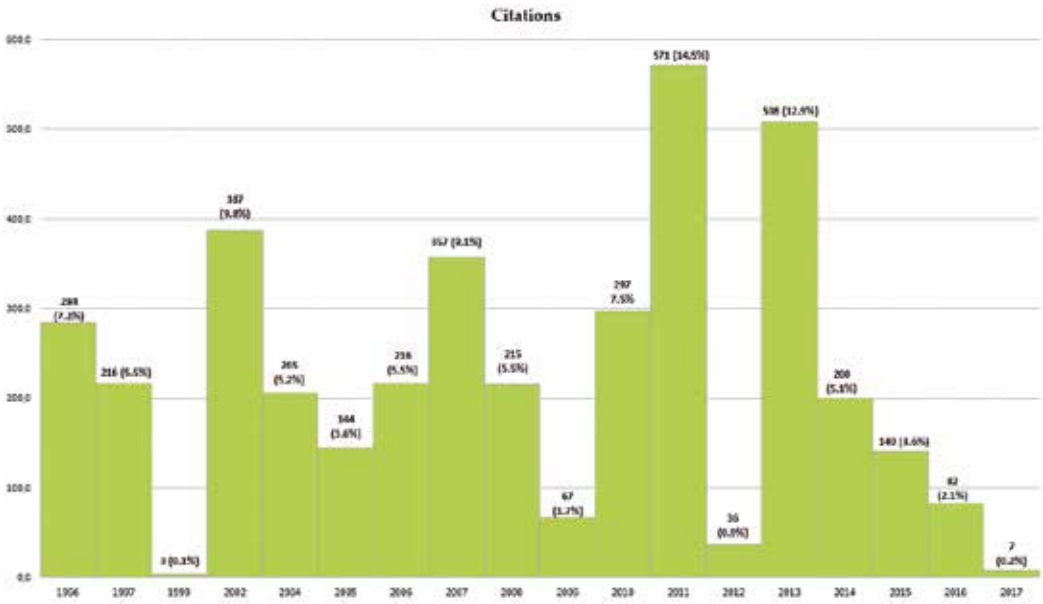

Figure 5. Total number of citations by year.

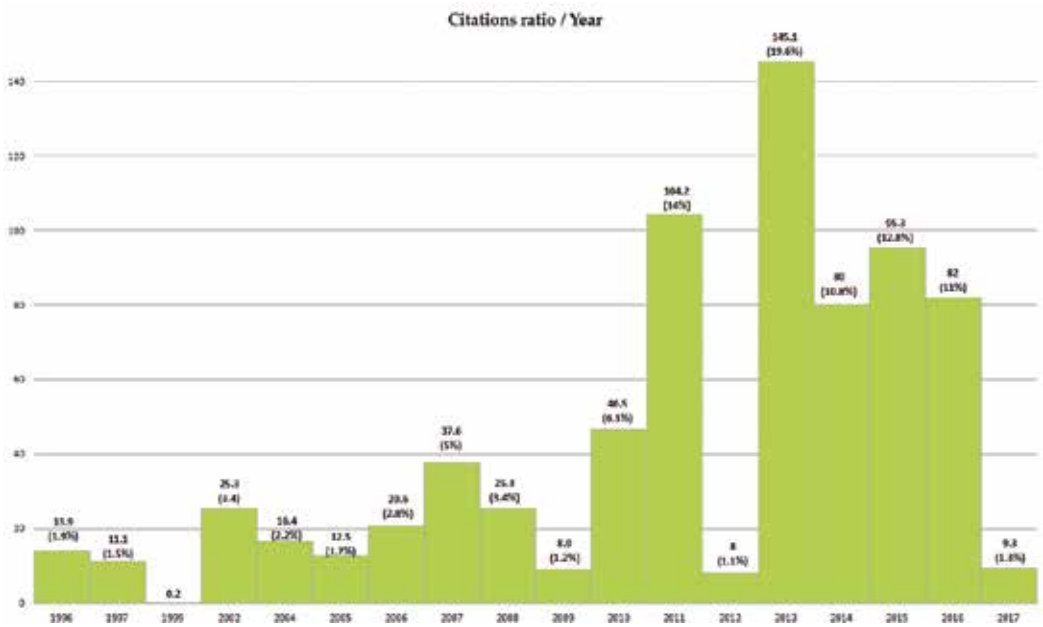

Figure 6. Citations ratio per year.

of 48.3 citations per year, is devoted to study both social and emotional skills of ASD people using VR. Two of the other four papers with best citation ratio are reviews [21, 49], showing both a mean of 21.6 citations per year, and the other two are research papers on improving social skills for ASD individuals using VR as well [16, 28], with means of 26.7 and 22.4 citations per year, respectively.

3.5. Most productive countries

Figure 7 highlights which countries showed a longer, more consolidated tradition in the treatment of ASD using VR. Out of 20 countries, 5 were selected for their higher productivity in this field. USA and UK produce about 67.7% of papers. The United States leads the ranking of largest producers with 65 papers—51.2% of the total—followed by UK (16.5%). India (4.7%), Spain (3.2%) and China (3.2%) lag far behind the top two countries, although only papers in English have been considered for this study.

3.6. Trends of research

In order to classify the research strategies within the reviewed literature, we now analyse the aforementioned contributions defining domains of research with regard to the content of the papers. **Figure 8** presents the six domains of research defined in **Table 2**, that is social or emotional skills research, the use of desktop VR or immersive VR, the development of Individual or Collaborative interaction and the making of reviews. Classification of productivity of each domain is quantified considering number of papers, citations mean per paper and citations mean per year per paper.

Paper	Type of paper	Citations	Citations ratio/year
Most 5 cited papers (values in bold)			
Parsons and Mitchell [9]	Review	**307**	21.2
Mitchell et al. [16]	Research on social skills	**254**	26.7
Parsons et al. [24]	Research on social skills	**205**	16.4
Strickland et al. [47]	Research on social skills	**187**	9.1
Strickland [48]	Research on social skills	**185**	9.5
Best 5 citations ratio papers (values in bold)			
Kandalaft et al. [31]	Research on social/emotional skills	169	**48.3**
Mitchell et al. [16]	Research on social skills	254	**26.7**
Smith et al. [28]	Research on social skills	56	**22.4**
Wang and Reid [49]	Review	119	**21.6**
Parsons and Cobb [21]	Review	119	**21.6**

Table 4. Most cited papers in relation to VR & ASD.

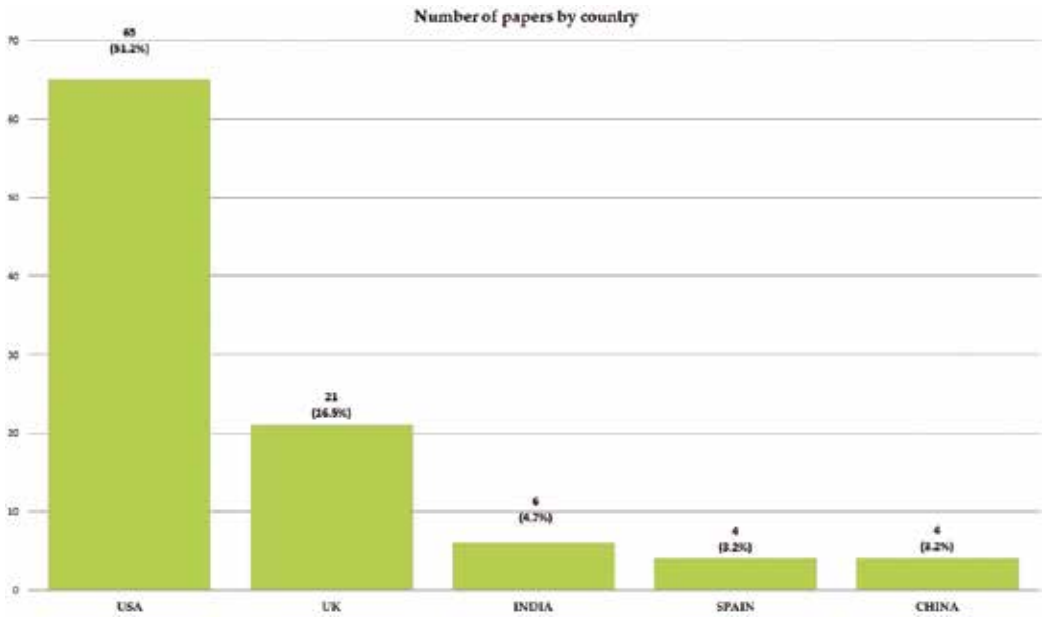

Figure 7. Most productive countries.

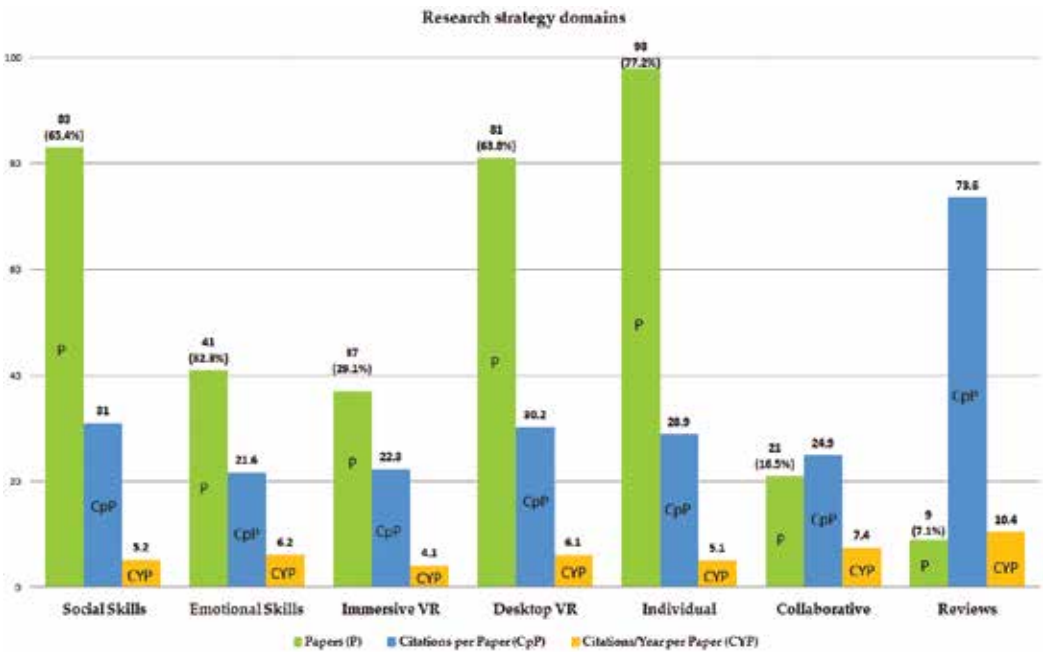

Figure 8. Research strategy domains.

The majority of the papers are devoted to the learning of social skills (65.4%), over those that deal with emotional skills (32.3%). Only 7.1% of papers are reviews. Individual interaction (77.2%) is clearly prevalent over collaborative (16.5%). As for the technology used, desktop VR (63.8%) overcomes immersive VR (29.1%). It is worth noting that for this study we have considered consistently the 127 papers revised as 100% of the sample in all cases, although six papers work on both social and emotional skills, and one paper utilizes both individual and collaborative interaction.

Nonetheless, if we consider citations, those papers devoted to social skills receive more citations per paper than those that work on emotional skills, whilst the latter show better citations ratio per year per paper. On the other hand, desktop VR papers show almost a third more citations per paper than immersive VR, which remains consistent with their ratio of citations per year per paper. As for individual interaction papers they show better ratio of citations per paper compared to collaborative interaction papers, whereas collaborative interaction papers present more citations per year per paper. Finally, as expected, the best citation picture appears in the reviews.

3.7. Social and emotional skills sub-domains

In order to get a better picture of the educational research strategies followed to date, we define several sub-domains within both social and emotional skills areas (**Table 3**). **Figure 9** shows a classification of productivity of each social skills research strategy area considering numbers of papers, citations mean per paper, and citations mean per year per paper.

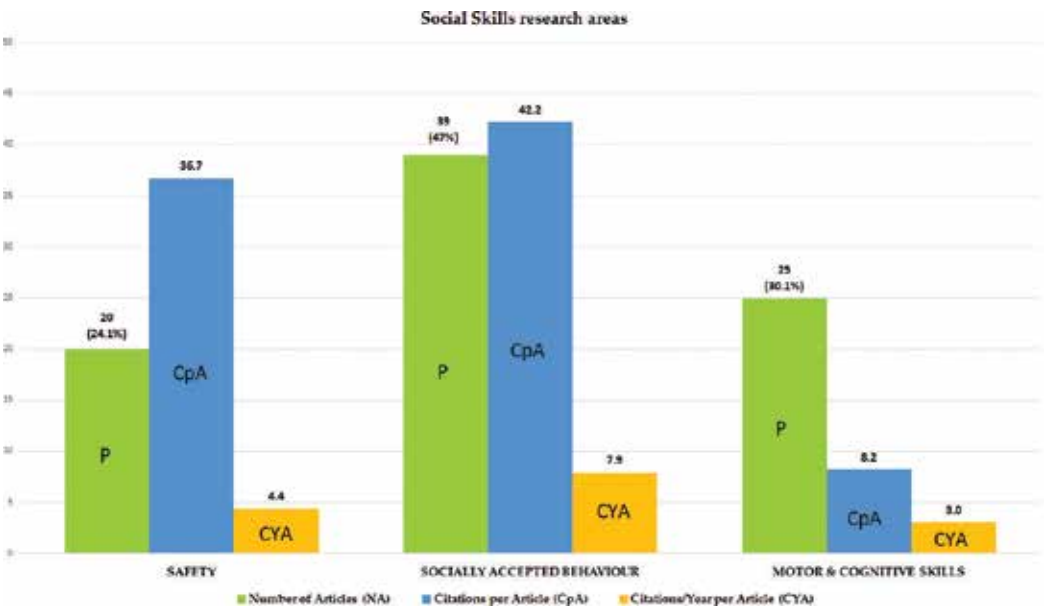

Figure 9. Social skills research strategy domains.

In social skills, the majority of papers are on "socially accepted behaviour" (47%), showing also the best citations ratio. "Safety" gathers slightly less papers (24.1%) than "motor and cognitive skills" (30.1%), but the first (36.7) more than quadruples the mean of citations per paper of the latter (8.2). Nevertheless, both "Safety" (4.4) and "motor and cognitive skills" (3.0) domains show similar citations ratio per year per paper.

Table 5 presents the three papers with best citation rate within the social skills sub-domains described in **Table 3** [16, 27, 28, 31, 47, 48, 50, 51]. One of these top citation rate papers [50] takes part both in "safety" and "motor and cognitive skills" areas of research. Both three top citation rate papers belonging to the aforesaid research sub-domains use immersive VR [27, 47, 48, 50, 51] whilst those papers with best citation rate within "socially accepted behaviour" research strategies choose desktop VR as educational tool [16, 28, 31]. Only one paper out of this list poses a collaborative virtual environment for social interaction [31].

Similarly, **Figure 10** shows a classification of productivity of each emotional skills research strategy area considering numbers of papers, citations mean per paper and citations mean per year per paper.

"Emotions recognition and regulation" area of research leads the number of papers on the subject (58.5%) followed by "facial cues and joint attention" (41.5%) and "non-verbal language" (7.3%). Surprisingly, "facial cues and joint attention" (24.1) shows the best citations mean per paper of the three domains at stake, whilst "emotions recognition and regulation" (6.1) maintains the best citation ratio per paper per year, although "facial cues and joint attention" (5.4) presents a similar figure on this matter. "Non-verbal language" research domain lags far behind both in number of papers (7.3%) and citations rate (3.2).

Article	VR type	Type of interaction	Citations	Citations/year
Safety				
Saiano et al. [50]	Immersive (BS*)	Individual	15	**10.0**
Strickland [48]	Immersive (HMD*)	Individual	185	**9.5**
Strickland et al. [47]	Immersive (HMD*)	Individual	187	**9.1**
Socially accepted behaviour				
Kandalaft et al. [31]	Desktop	Collaborative	169	**48.3**
Mitchell et al. [16]	Desktop	Individual	254	**26.7**
Smith et al. [28]	Desktop	Individual	56	**22.4**
Motor & cognitive skills				
Saiano et al. [50]	Immersive (BS*)	Individual	15	**10.0**
Lorenzo et al. [27]	Immersive (CAVE*)	Individual	31	**8.9**
Greffou et al. [51]	Immersive (CAVE*)	Individual	36	**8.0**

*HMD = head mounted display; BS = big screen.

Table 5. Best citations rate articles (values in bold) within the social skills sub-domains.

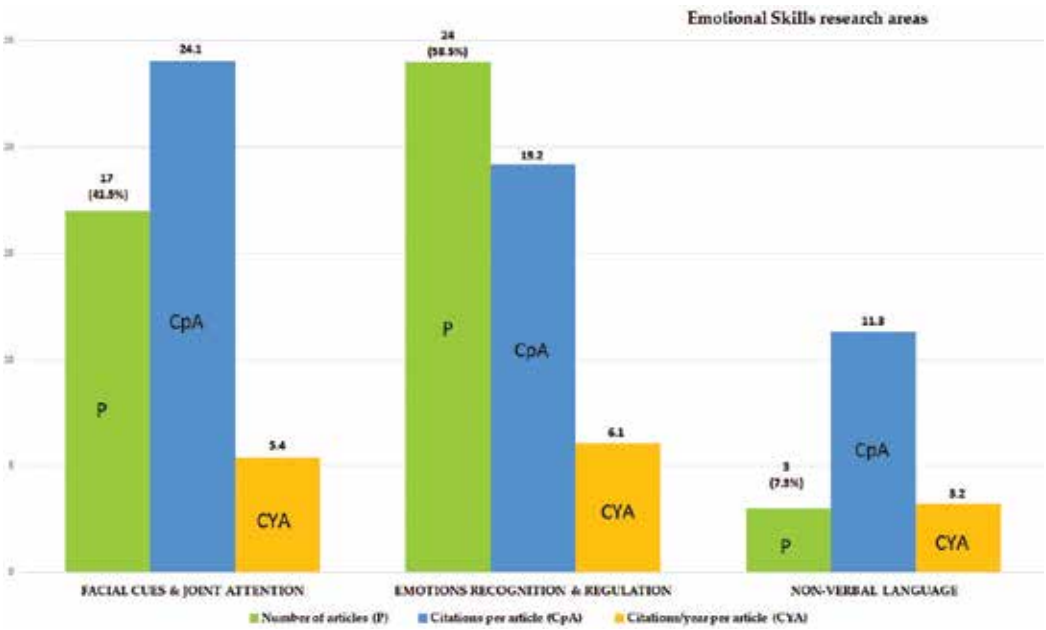

Figure 10. Emotional skills research strategy domains.

Table 6 presents the three papers with best citation ratio within the emotional skills sub-domains described in **Table 3** [31, 52-59]. All nine papers use desktop VR as learning tool. Two papers of this list belonging to "emotion recognition & regulation" research sub-domain utilize

Article	VR type	Type of interaction	Citations	Citations/year
Facial cues & joint attention				
Lahiri et al. [52]	Desktop	Individual	55	**15.7**
Lahiri et al. [53]	Desktop	Individual	75	**13.6**
Bekele et al. [54]	Desktop	Individual	44	**12.6**
Emotions recognition and regulation				
Kandalaft et al. [31]	Desktop	Collaborative	169	**48.3**
Didehbani et al. [55]	Desktop	Collaborative	17	**17.0**
Cheng et al. [56]	Desktop	Individual	75	**11.5**
Non-verbal language				
Kuriakose and Lahiri [57]	Desktop	Individual	8	**5.3**
Schwartz et al. [58]	Desktop	Individual	24	**3.7**
Kuriakose et al. [59]	Desktop	Individual	2	**0.6**

Table 6. Best citation rate articles (values in bold) within the emotional skills sub-domains.

collaborative virtual interaction [31, 55]. One of these two papers is also part of the list of papers with best citations ratio within social skills, as it works both emotional and social competences [31].

4. Discussion

The aim of the work presented here consisted in carrying out a bibliometric analysis about the state of scientific production with regard to the use of virtual reality (VR) as a learning tool for individuals with high functional autism spectrum disorder (ASD). Virtual reality provides a safe customizable learning environment where ASD students are able to repeatedly practice and develop their social and emotional competences. This field of research, which started more than 20 years ago, has obviously been conditioned by both the VR technology development and all the substantial changes that have occurred over this period with regard to the categorization of ASD. The present study has enabled us to quantify some clarifying results about the understanding and evolution of this topic of research. First of all, the scientific production in this field is rather small considering its relatively wide trajectory. As for the variables selected when classifying the documentary information about VR and ASD and the bibliometric indicators chosen, it is worth highlighting that most of the scientific production is concentrated between 2010 and 2017. This probably has to do both with the level of development and affordability of the VR technology and the capability of adopting strategies to use it as a learning tool for ASD individuals.

The journal with the largest concentration of papers is the Journal of Autism and Developmental Disorders with 19 papers, whilst the second source corresponds to International Conferences, Universal Access in Human-Computer Interaction. In both cases the large majority of published research corresponds to the period 2010–2017. The fact that an international conference accumulates a significant part of the scientific production within our sample means that this is a topic that has been debated with a growing interest amongst researchers in the field during the last years. In dealing with co-authorship, it is worth mentioning that papers written by 2, 3, 4, 5 and 6 authors account for 71.6% of the whole sample studied; and a special mention needs to be made of papers with 3, 4 and 6 authors, which represent 47.2% of the sample. There are also a few papers involving 9 or 10 authors, maybe indicating that larger team groups start to deal with the topic, due to its multidisciplinary characteristics, involving technicians related to the VR technology, together with psychologist and educational therapists.

As for citations, we distinguish between total number of citations and citation ratio per year. Taking into account the sample size it is worth considering both indicators that serve the purpose of highlight the concentration of interest in the papers as well as in the research strategies. The most cited paper is a review [9], whilst the next most cited papers are both devoted to social skills[16, 24].These three most cited papers are authored by Parsons, Mitchell and Leonard, highlighted as influential pioneers on this topic of research. Nevertheless, it is also worth mentioning that the paper with the highest citation ratio [31] deals with both social and emotional skills utilizing collaborative interaction, showing that relatively recent research working on a wide range of competences and recreating a more natural interaction sparks the interest of other researches in the field.

If we look at the countries with the largest production, the United States of America clearly stands out from the rest, followed by the United Kingdom. India, Spain and China appear immediately after. Of course, the fact that the selected language was English influenced this result.

It is worth mentioning that the sample selected presented an approach based on educational and pedagogical interventions rather than from a psychological perspective, whilst the vast majority of studies on high-functioning ASD belong to the behavioural sciences area [60]. This fact, together with the specific use of virtual reality as an educational tool may also explain the sample size, since the pedagogical treatment of the topic is rather new.

Regarding the six domains of research, namely social or emotional skills research, the use of desktop VR or immersive VR, the development of Individual or Collaborative interaction and the making of reviews, we observe that the amount of papers devoted to the learning of social skills strongly dominates those that deal with emotional skills. Similarly, papers using individual interaction clearly prevail over those using collaborative, and desktop technology strongly overcomes immersive VR. We may say that the typical paper deals with social skills, uses desktop technology and individual interaction. Not surprisingly, papers lying in the prevalent domains of research receive more citations. Nevertheless, we also perceive a turning interest towards emotional skills and collaborative interaction when looking at the ratio of citations per year per paper, that overcome those of social skills and individual interaction. The explanation may rely on the turning importance given in ASD classification to emotional skills as well as in the lately availability of affordable technology, also related with the late emerging of more papers using immersive technology, even though they are still far away from desktop.

Only 7.1% of papers are reviews, but they have a very good citation record. This is quite normal, since reviews are a source of interest, not only for established researcher but also for anyone starting in the field.

Finally, an interesting picture emerges when analysing more in deep the sub-domains within social and emotional skills. In dealing with social skills, “socially accepted behaviour”, is the sub-domain with most papers, showing also the best citations ratio, probably due to the fact that it comprises a wider range of competences. “Safety” gathers slightly less papers than “motor and cognitive skills”, but the first more than quadruples the mean of citations per paper of the latter. Nevertheless, both “safety” and “motor and cognitive skills” domains show similar citations ratio per year per paper. One of top citation rate papers belong both to “safety” and “motor and cognitive skills”, showing also a certain turning into more practical skills in the late years. Also, the best citation rate papers use immersive VR, whilst those papers with best citation rate within “socially accepted behaviour” research strategies choose desktop VR as educational tool.

In the case of emotional skills, “emotions recognition and regulation” area of research leads the number of papers on the subject, closely followed by “facial cues and joint attention”. “Facial cues and joint attention” shows the best citations mean per paper of the three domains at stake, whilst “emotions recognition and regulation” maintains the best citation ratio per paper per year, although “facial cues and joint attention” presents a similar figure on this

matter. In this area, thus, these are the two sub-domains receiving more attention from the researcher. "Non-verbal language" research domain lags far behind both in number of papers and citations rate. All the most cited papers in the whole area use desktop VR as learning tool. Two papers of this list belonging to "emotion recognition & regulation" research sub-domain utilize collaborative virtual interaction. One of these two papers is also part of the list of papers with best citations ratio within social skills, as it works both emotional and social competences.

In spite of the effort we made in classifying the different strategies used, we may say that the sample size does not allow us to obtain strong conclusions on the main trends of research. The design and development of the different virtual environments (VE) needed to conduct research to improve the social and emotional competences of ASD individuals is a high-effort task, and whether it is true that some designs have been shared in different research projects or already are open-access tools [12, 29, 31], it is also true that a great deal of papers imply the develop of their new ad-hoc VE scenario. This is understandable, considering the wide range of possible skills to be tested and improved, and the wide range of ASD cognitive styles with their particular special educational needs. Nonetheless, in a promising and emerging field, the promotion of growing synergies is highly recommended. Creating a VE repository for researchers to have at hand would ease the research processes and the possibility of producing better reliable comparable results.

5. Conclusions

Summarizing, we may say that from this study we observe an increasing interest in the topic "Virtual Reality as an educational tool for High Functioning ASD children" since 2010; with significant prevalence of studies on learning social skills, using individual interaction and desktop technology; that nevertheless, the use of immersive technology and collaborative interaction are strongly increasing and also there is a tendency to deal more frequently with emotional competences. It is interesting to remark that the current availability of affordable VR technique as well as the increasing capabilities to offer new applications will most likely increment the power of VR as an educational tool. The use of this technology for ASD children seems to be extremely promising and may well become a standard educational instrument for this population in the future. The best way of so doing clearly involves the need of creating interdisciplinary research teams to fully exploit the capabilities of the technology as a tool to overcome both social and emotional handicaps in ADS children.

Next we highlight the main conclusions:

- The scientific production in this field is rather small considering its relatively wide trajectory, mostly concentrated between 2010 and 2017.
- The United States of America is the country with the largest production of papers, followed by the United Kingdom. Journal of Autism and Developmental Disorders is by far the journal with most production on the topic of research.

- In dealing with the strategies used, we may say that the typical paper deals with social skills, using desktop technology and individual interaction. The most cited papers belong to these categories.
- We nevertheless perceive a turning interest towards emotional skills and collaborative interaction when looking at the ratio of citations per year per paper, that overcome those of social skills and individual interaction.
- Only 7.1% of papers are reviews, but they have a very good citation record.
- In dealing with social skills, "socially accepted behaviour", is the sub-domain with most papers, showing also the best citations ratio.
- The best citation rate papers in "safety" and "motor and cognitive skills" use immersive VR, whilst those papers with best citation rate within "socially accepted behaviour" research strategies choose desktop VR as educational tool.
- In the case of emotional skills, "emotions recognition and regulation" area of research leads the number of papers on the subject, closely followed by "facial cues and joint attention".
- The promotion of synergies within researchers in the field would boost the production and quality of the results obtained. Creating a VE repository for researchers to have at hand would ease the research processes and the possibility of producing better reliable and comparable results.

The main limitation of our research deals with the sample size, but this is nothing but an outcome of the novelty and specificity of the topic. Nonetheless, we feel that our main conclusions are robust enough, signalling the trends for future research.

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Section 2

Child Psychology

Chapter 5

Influence of Parental Divorce on Anxiety Level of Adolescents[1]

Senija Tahirović and Gokce Demir

Additional information is available at the end of the chapter

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Abstract

Family divorce might have an effect on some aspects of child development. Adolescence as a transitional stage is marked by process of seeking identity, the need for intimate relationship, as well as the struggle for psychological independence from family. Anxiety is defined as a state of extreme worry, fear, and uncertainty which results from the expectation of a threatening event or situation. The aims of study are: to explore the differences in anxiety levels among adolescents from divorced and intact families; to explore the level of anxiety of adolescents from divorced and intact families with respect to their genders. A demographic questionnaire was created and The Beck Anxiety Inventory was applied to measure anxiety. The scale was applied with 162 participants who were chosen randomly from 5 different high schools in Istanbul province. The study found out that there are statistically significant differences in anxiety level of adolescents between children from divorced and intact families. Descriptive measures are in range as follows: (17.67 ± 9.645). The adolescents from divorced families had a higher level of anxiety ($t = 17.322$; $p < .05$). The result related to the second study aim shows that there are no statistically significant differences in anxiety between male and female adolescents from divorced and intact families ($p > .05$).

Keywords: family, anxiety, parental divorce, development, adolescence

1. Introduction

One of the most important factors that determine the development of children is family, in which parents provide a secure place for psychosocial development, in which children learn behaviors and moral and ethical principles.

[1]The research presented in this chapter is part of Master thesis.

From birth to the maturation period, children pass through developmental stages which are marked by different challenges, but at the same time there are achievements of specific developmental milestones. Adolescence is a developmental stage which has particularly emphasized challenges in the field of rapid physical development, development of identity, and positioning of a young person into the world of adults. This is the stage which is marked by the transformation of physical identity, way of thinking, taking responsibility, and trying to become independent. Therefore, for a majority of youth, this is the period which is marked by turbulence and various kinds of fear from failure. This psychological state sometimes transforms into a condition that can be identified as anxiety in a young person which can interfere with normal psychological processes in adolescence. Adolescents are often in conflict with their parents because, they want to be independent, but at the same time their parents' love and the sense of security in the family is necessary for them.

Tendencies in modern society indicate an increased number of divorces and an increased number of families in which one parent takes care of the child, while the other parent only occasionally participates in the upbringing of children. In the most cases, divorce means frequent conflicts, and a tense and insecure atmosphere in the family. If a child grows up in such an atmosphere, his/her judgment of family insecurity may cause the development of anxiety symptoms. Having in mind the natural developmental processes happening during adolescence, we wanted to examine whether growing up in a family where the divorce of parents exists increase the probability of development of anxiety in adolescents. Since we know that family is an important factor in child development, we assume that young persons who grow up in divorced families have higher level of anxiety than those growing up in complete families.

It is very difficult to make a definition of the concept of family that is common for all human societies. Societies give different meanings to the concept of family depending on their own structures. It is accepted by all societies that family is one of the essential structures of organization, and it is even the foundation of society [1].

Various definitions are developed for the concept of family. Some of these definitions focus on the structure of family while the others focus on the functions of family. A common point of these definitions is that family is the most basic social foundation in any society. Family is a social structure making a person happy to be a member of it; it is a place where a person feels protected in every aspect of life. Basic needs in life are fulfilled by family. The first interaction is experienced within the family. Basic behaviors and habits related to life are acquired by an interaction in the family [2]. Family is the first place of learning which is very important for the child's social and emotional development [3].

Family setting in which the child grows up has an important role for the development of child personality; it provides the most useful adaptation skill to the society to which the child belongs. Parents' support to the child in the adaptation process to the physical and social environment has a significant impact on child social and personality development [4]. A harmonious relationship between mother and father helps them develop a consistent, warm, and affective approach to their children. In that way, family represents an environment in which love, compassion, care, confidence, support, and democracy are provided. Furthermore, a democratic interaction between mother and father grounds the development of a healthy and efficient communication between mother-father and their children [5].

From the legal perspective, divorce is described as the termination of the marriage with the decision of judge based on anticipated reasons explained in the legislation. Different authors presented different factors that might cause divorce. Ozguven [6] presented the basic reasons for divorce as follows: inadequate familiarization of husband and wife during premarital process causes high probability for divorce; different socio-economic status of husband and wife and different cultural environment makes harmony difficult; communication problems among couples damage the relationship of husband and wife; an intervention by parents of husband and wife to family life dynamics cause conflicts and many problems in marriage; jealousy harms the trust and tolerance between husband and wife effecting happiness and harmony. In accordance to Ciftci and Bicici [7], the problems in marriage which can lead to divorce can be listed as follows:

- Financial problems: it is frequently reported that the persistence of financial problems in the family run into the risk for divorce.
- Communication problems: most of problems among people usually occur as a result of failing of communication or a faulty communication. Communication problems can happen between wife and husband, or parents and children, or wife-husband and their parents.
- Environmental problems: environmental problems can cause the existence of some problems within the family by factors such as the effect of the working conditions of family members or neighborhood relations.

Even though divorce is perceived as a relief and rescue from an unhappy marriage for couples, it actually means the destruction of the family system and the marriage which was established with great expectations and hope. Very often problems would not be solved with divorce and it can affect couples in a negative way regarding psychosocial and financial aspects. Because of these reasons, divorce in general is not interpreted as a complete return to the premarital freedom or a rescue, meaning a new bachelorhood period. Divorce is actually the beginning of a difficult period which is not the end of unhappiness. Couples have the feeling of emptiness. They have needs of overcoming previous habits, and building a new life style and new relations [8].

Today, divorce has become a natural matter as a part of marriage life even though it is unfavorable for families, and especially children. In cases when divorce is the best solution for the family, realization of divorce in a civilized way causes less psychological and personal damage in husband and wife, and their children [9].

The concept of mother/father in marriage is a vital element in terms of psychological development and social adaptation of the child. In other words, living with mother and father, growing up with mother and father, and having an unbroken family are the essential factors needed for emotional development, as well as social and psychological maturity of the child. However, if the concept of mother/father in marriage means family atmosphere with tense relations between mother and father and dominant presence of restlessness and conflicts, the family concept does not provide a secure environment for the child. It is indicated that the degree of impact of divorce on child depends on the way how divorce is realized [10]. Moreover, it is specified that the case of a stressful period of divorce, an unhealthy communication, and a lack of love and security issues affect the child deeply rather than divorce itself

[11]. Getting over the case of divorce is very difficult for a child without an intense parental support. Child has the fear of being abandoned. Therefore, a child whose father and mother are divorced need more clear signs to be loved and valued. Each child is affected by the separation of mother and father. The degree of influence depends on some factors such as age, personality development, and parental attitude [12, 13].

The emotional reaction of adolescents on divorce is marked by pain, disbelief, anger, and the feeling of loss. Regarding their behavior, some adolescents show problems in behavior, such as running away from school, taking drugs and alcohol, failure at school and similar, which can be considered as a response to parent's divorce. Adolescents often have the feeling of guilt toward parent's divorce; they believe that either their behavior or the fulfillment of parents' expectations is the cause of divorce. These feelings, besides the judgment of the loss of security of the family environment, reveal the cause of depression or the development of symptoms of anxiety. The reaction on parents' divorce in adolescence is different according to gender. Young girls begin early sexual relations more often due to the lack of self-confidence, while boys often react on a behavior area by aggressive and delinquent behaviors. The risk for drug and alcohol abuse is present in both genders [14].

It is also stated that divorce has rarely a positive effect on the child. Moreover, it is emphasized that lack of a parent, emotional and financial tightness, and sometimes continual conflicts between divorced parents would cause psychological problems for many children. However, it is also mentioned that even though children have adaptation problems for the new life, the sensitivity for divorce mostly depends on age, developmental maturity, length of passed time after divorce, and social support system. The reactions also change according to the maturity of the child and circumstances at home. Therefore, it is explained that the determination of the standard reactions of such situation is very difficult [15].

Children usually assess divorce as the end of the family life, prediction of future period of uncertainty, and loss of love from at least one of the parents. Feelings of uncertainty and difficulties to predict and control the situation can cause anxiety. In addition to that, if parents, because of personal stress, do not pay attention to the child's psychological reactions on divorce, there will be a great risk for development of psychological problems such as anxiety. Separation anxiety, specific phobia, and selective mutism might be more present in children in preschool period. Generalized anxiety disorder, agoraphobia, and panic disorder might be more present in adolescence period [16].

2. Key aspects of development in adolescence

Adolescence as a transitional stage is the period in which psychological, cognitive, and emotional changes are experienced as a result of seeking identity, the need for intimate relationship, cognitive development, rapid sexual development, and the struggle for being psychologically independent from family. The beginning, duration, and termination of this period depend on social and cultural factors as well as individual maturity levels [17].

Various physiological, psychological, and social changes and developments occur in this stage. The outcomes of changes in adolescence period might have an impact on future life of the adolescent. This period is referred as "storm and stress" by many authors, has a crisis attribute with these developmental challenges. An adolescent has to cope with sex drives caused by biological changes in body by adjusting to them. The cognitive developments occur in parallel with the periodical maturity drive [18].

The most important challenge in adolescence is the beginning of self-exploration as an individual. The adolescent begins to ask questions such as 'Who am I?', 'What kind of person will I be?', and 'Who am I according to other people?' During adolescence, psychosocial conflict of this stage develops as a result of getting in identity confusion against identity development. Identity problems come into prominence in this stage mostly. Achieving autonomy and adopting the new values are significant developmental points for adolescence. In this stage, conflicts with parents, failures at school, and problems in relations with persons of the same gender and peer of opposite sex stand out. According to Erikson's theory, the most important developmental duty of adolescence is the identity achievement. There are many dimensions of identity concept. These dimensions may be grouped as sexual, social, physical, psychological, moral, ideological, and occupational dimensions. All these dimensions form the entire identity. Firstly, sexual and physical dimensions of identity develop. While adolescents are mostly interested in their body images and sexual identities in early adolescence, the choice of profession, ideologies, and moral values are considered more important in later years [19]. Psychological changes appearing during this period are results of rapid physical changes. The adolescent gets anxious, uneasy, unbalanced, and incompatible even though he/she was previously happy, easygoing, and balanced. Adolescent's emotions and interests change, get waver and indecisive, while enthusiasm becomes excessive, limitless, or unbalanced [20]. Stress developing as a result of changes in adolescence causes the adolescent to be depressive, so the feeling of loneliness appears. Therefore, the adolescent needs parents who would provide trust and support in struggling with distress, pleasant feelings such as pessimism and uneasiness. If parents are able to listen to the adolescent without criticizing, despising, and judging, they provide an opportunity to him/her for self-expression and better condition for personality and identity development. However, the adolescent who does not have parental support may experience anxiety, fear, and the feeling of loneliness. Time spent with friends increase and the adolescent gets under the influence of friends more than he/she does during childhood. However, subjects that are under the influence of peers are limited and parents continue to be the source of information in important topics for a young person. The adolescent finds parents' opinion to be important firstly in the subjects of future, school choice, and profession choice. The experienced conflicts are generally related with moral behavior, relations with family members, academic success, taking responsibilities, and social interactions such as dressing style and hair style [21].

As it is obvious, many adolescents experience internal psychological conflicts and external conflicts with their family and peers at the same time. Frequent shifts from mature behaviors to childish behaviors while identity development continues make adolescents restless. Conflicting emotions generally increase in the effort to be independent of family. The adolescent is in emotion conflict with his need to be independent from family on one side, and the

need for their support and love on the other. The adolescents dream about being grown-up and changed into an adult persona as fast as possible. In the same time they are not sure about new social roles and ways how to make personal choices and decisions. Even though adolescents try to deny the adequate role of parents and other significant people, they still feel safer to have parents around them. They usually resolve internal conflicts temporarily which give them the impression that they are independent and parents' support is unneeded in their life. However, in most cases, it is just an impression and a feeling, but in fact, they need parent's support, but on a different and more sophisticated way. The role of parents in adolescence period is supposed to be backed up in resolving conflicts and struggling in identity confusion. Very often, parents experiencing their personal crises because of marriage problems and a possible divorce are not able to offer relevant support to their children. Therefore, adolescents growing up in such families are faced with natural developmental challenges, problems in the family, and poor support from parents. All of this puts them into the more risky situation for the development of psychological problems such as anxiety [22].

3. Anxiety disorders

Anxiety is defined as a state of extreme worry, fear, and uncertainty which results from the expectation of a threatening event or situation. It frequently causes disruption of physical and psychological functioning [23]**.** The way how anxiety disorder was presented has been changed through different Diagnostic and Statistical Manual of Mental Disorders classifications (DSM). DSM 5th Edition (DSM-5) has several changes regarding the diagnostic category of Anxiety Disorders. Obsessive compulsive disorder (OCD) is among the change which is moved to its own chapter as a new entity. Posttraumatic stress disorder (PTSD) is moved to a new chapter in which acute stress and adjustment disorders are included. Furthermore, anxiety disorders in childhood are not included as a separate chapter anymore. Panic disorder and agoraphobia are classified as separate disorders in Anxiety Disorders because each of them can exist alone. Moreover, a Panic Attack Specified is added to the DSM-5 to use for the case panic attacks existing in the context of another anxiety disorder. Moreover, selective mutism is added to the Anxiety Disorders. Furthermore, the 6-month duration for symptoms is possessed to all ages with DSM-5 [24]**.** Another change is that separation anxiety disorder is shifted into Anxiety Disorders which was included in the Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence part as previously [25].

In DSM 5 Classification, different types of anxiety disorders are presented and symptoms and diagnostic criteria are explained. *Generalized anxiety disorder* (*GAD*) refers to the statement of the feeling of anxiety almost all the time in any kind of circumstances or the case that is characterized with a persistent and a long duration of anxiety, which makes it different from the other forms of anxiety disorders [24]**.** *Agoraphobia* refers to the statement of intense fear that develops in places or situations in which is difficult to escape. According to the DSM-5, for diagnosing people with agoraphobia, there is a need of having symptoms of extreme fear in public places which are perceived as too open, dangerous, and crowded mostly. *Panic attack* refers to the repetitive state of anxiety and sudden panic attacks with the fear of outcomes of this state, such

as the fear of death, being mad, or losing control. Panic disorder is the disorder which brings a serious loss of functionality and the state of distress for the person. *Specific phobia* is characterized by an intense and persistent fear of a particular situation or object. For people with specific phobia, an intense anxiety develops by the exposure to the particular object or situation causing the fear. People with specific phobia have the fear of getting harmed. *Social Anxiety Disorder* was named as Social Phobia in DSM-4. It was explained as a kind of anxiety that was developed as a result of the fear of getting insulted by others and the feeling of shame in social conditions which cause severe anxiety. According to DSM-5, Social Anxiety Disorder indicates a broader scope of the condition as covering variety of social conditions. The person with the Social Anxiety Disorder feels stressed in cases of performing a social performance, which can bring about a panic attack. People with the Social Anxiety Disorder have distress in public speeches, eating or writing in the presence of other people and they avoid such situations. *Separation Anxiety Disorder* is referred as an excessive statement of anxiety or feeling of fear for separation from attachment figure that is developmentally inappropriate. Duration of the disorder to meet diagnosis for the Separation Anxiety Disorder criteria is at least 6 months in adults and at least 1 month in children. *Selective Mutism* is identified with the person not being able to speak in specific social conditions (as in the school) in which speech is expected even though he/she is capable of speech in other conditions normally. One of the characteristics of selective mutism is that the person with selective mutism does not speak in specific social conditions though she/he speaks in other conditions. The important point is that children who suffer from selective mutism usually do not have any kind of language deficits. The onset of selective mutism is often under 5 years which is generally realized in school. The state of anxiety can be experienced in various severities from a mild restlessness and tension up to the degree of panic. It can be listed from psychological range to physical range specified as worry, tension, wince, feeling of loneliness, insecurity, fear, panic, astonishment, nervousness, unclear thinking, dry mouth, headache, dizziness, vomiting, weakness, lack of appetite, lower blood pressure or high blood pressure, muscle rigidity, stomach problems, hyperventilation, sweating, shaking, and insomnia. Moreover, anxiety can show behavioral indications varying from person to person [24].

Identifying the causes of anxiety disorder still has an unclear answer. In early theories, anxiety is explained as a defense strategy mechanism against the unconscious conflict. It is explained as a kind of adaptive behavior that is needed for person with internal conflicts. We cannot ignore biological innate tendency to react on the new situation with fear and anxiety that many children perform in early childhood. Behavior learning theories claim that children learn anxiety feeling and behavior from their parents or important people. Parents with specific or generalized anxiety disorder usually teach children to worry all the time or to be scared of specific objects or situations. A new research has proved that anxiety is linked with specific neurobiological and hormonal changes and processes in the body. Factors related to family situation, parents' anxiety, family atmosphere, are factors that should be considered as important causes for anxiety disorder in children. Among other family factors, parenting styles, such as rigid-authoritative or oppositely permissive parenting, can cause fear and nervousness in children. The way how family functions in everyday life, the way how parents cope with stress, solve family problems or use disciplinary methods, are important aspects of family life that influence child's psychological development. Additional factors, such as marital relationship and parent-child relationship, are significant factors effecting child's feelings and behavior. Parents' reaction on child's

developmentally appropriate fears and behavior can even increase anxiety in children. Families with many marital problems that might result in divorce are weighed with stress as well as disturbed family atmosphere. Growing up in such an atmosphere, living with parents who worry or fight most of the time, has effected child psychological development [26, 27].

4. Research methodology

Descriptive research method was applied in order to determine the relationship between parental divorce as independent variable and anxiety as dependent variable. A quantitative method was applied to analyze the data.

4.1. Aims and hypotheses of study

The study had following aims: to explore the differences in anxiety levels among adolescents from divorced and intact families; to explore the level of anxiety of adolescents from divorced and intact families with respect to their genders.

Based on research questions the following hypotheses are developed:

H_1: There is statistically significant difference in level of anxiety between adolescents from divorced and intact families.

H_2: There is no statistically significant difference in anxiety level among adolescents from divorced and intact families in regards to gender.

4.2. Participants and procedures

The sample consists of adolescents from five different high schools from Istanbul, Turkey. The participants of the study were chosen with systematic random sampling technique.

Principals from participating schools allowed the research. Departments in which the research was done are selected based on the information we get from schools' managements, in which the departments containing children from divorced families were indicated. The study was conducted with 190 students. However, the analysis was done with 162 participants because some students did not give the data about whether or not they live in divorced families. Some participants did not respond to all questions from Back Anxiety Scale, therefore, all participants with incomplete data are excluded from the research. An additional selection of participants of the study in regards to parental divorce as independent variable was not done, however we come to an equal number of adolescents from divorced and intact families.

Participants were provided with the information sheet and informed consent before the study. The questionnaires were distributed to the participants. The participants were asked to answer the questions. For the assessment of anxiety, the Beck Anxiety Inventory was applied with its Turkish adaptation. The instructions were given to the participants by explaining that they should select the closest statement in the answer box. The researcher was present during the survey, and as each was done, s/he would put them into the arranged box.

The research was conducted in 2016–2017 academic year. Both female and male adolescents were included in the research. A total of 73 female and 89 male participants participated in the study.

4.3. Materials

A demographic questionnaire was created and one data collection instruments were applied for the study. For assessment of anxiety level of participants Beck Anxiety Inventory was used. It is a self-report inventory which is developed by Aaron Beck in 1988 in order to measure intensity and severity of an individual's anxiety. The Beck Anxiety Inventory (BAI) is a 21-item Likert scale that is presented with four response choices (4-point scale) ranging from 0 to 3 as "Not at all", "Mildly", "Moderately", and "Severely". The total score has a minimum of 0 and maximum of 63. Results interpretation provides us with a possibility to discriminate participants as anxious and non-anxious group. Among anxious group the results from Back Anxiety Inventory discriminate participants with low anxiety, moderate anxiety and high anxiety. The adaptation of the scale in Turkish version is done by Ulusoy. Cronbach's alpha is .92 while test-retest is found as r = 75 and r = 67 [28].

4.4. Data analysis

A quantitative method was applied to analyze the data. The analysis of data was done using IBM SPSS version 19.0. Descriptive statistics and frequencies were employed in this study for summarizing the statistical characteristics of adolescents from divorced and intact families. Independent samples t-test was applied for investigating the difference between adolescents from divorced and intact families in their anxiety levels. Moreover, two-way ANOVA was applied to examine the difference between male and female adolescents from divorced and intact families in their anxiety levels.

5. Results

In this part of the study, descriptions of the findings are presented. Firstly, a description of the characteristics and background of the participants of the study were illustrated. The collected data were analyzed by applying frequencies, descriptive statistics, correlations, independent samples t-test, and two-way ANOVA. Research questions and hypotheses are followed for the representation of the results and interpretations of the results one by one. The results are illustrated with tables.

In **Table 1** demographic characteristic of participants are presented. The gender, chronological age, and information about parental divorce are in the focus of our study.

Regarding the gender of participants, 45.1% of participants were female and 54.9% were male. Majority of participants are age 17 (51.9%), age 18 (25.3%), and 16 (16.7%.) Data presented in **Table 1** proved that our participants are in adolescence period, and that half of them live in divorced families and another half in intact families.

		Frequency	Percent
Gender	Female	73	45.1
	Male	89	54.9
	Total	162	100
Age	15	10	6.2
	16	27	16.7
	17	84	51.9
	18	41	25.3
	Total	162	100.0
Parental divorce	Yes	81	50.0
	No	81	50.0
	Total	162	100.0

Table 1. Demographic characteristics of participants.

From the results in **Table 2**, we can conclude that 63.6% of our participants scored 21 and less, which can be interpreted as low level of anxiety. About 32.7% of our participants scored between 22 and 35, which indicates moderate anxiety of our participants. Approximately 3.7% adolescents scored 36 and more, which we considered as high anxiety. Although statistical data indicate that more than half of participants in the study have low level of anxiety, the fact that 36.4% of participants have moderate and high level anxiety is important information to be considered and discussed.

Statistics		
BAI (0–3)		
N	Valid	162
	Missing	0
Mean		17.67
Std. error of mean		.758
Median		15.50
Mode		7
Std. deviation		9.645
Variance		93.031
Range		36
Minimum		3
Maximum		39

BAI (0–3)					
		Frequency	**Percent**	**Valid percent**	**Cumulative percent**
Valid	3	1	0.6	0.6	0.6
	4	8	4.9	4.9	5.6
	5	6	3.7	3.7	9.3
	6	3	1.9	1.9	11.1
	7	11	6.8	6.8	17.9
	8	6	3.7	3.7	21.6
	9	9	5.6	5.6	27.2
	10	6	3.7	3.7	30.9
	11	1	0.6	0.6	31.5
	12	10	6.2	6.2	37.7
	13	5	3.1	3.1	40.7
	14	6	3.7	3.7	44.4
	15	9	5.6	5.6	50.0
	16	4	2.5	2.5	52.5
	18	3	1.9	1.9	54.3
	19	7	4.3	4.3	58.6
	20	7	4.3	4.3	63.0
	21	1	0.6	0.6	63.6
	22	5	3.1	3.1	66.7
	23	3	1.9	1.9	68.5
	24	8	4.9	4.9	73.5
	25	4	2.5	2.5	75.9
	26	2	1.2	1.2	77.2
	27	5	3.1	3.1	80.2
	28	7	4.3	4.3	84.6
	29	5	3.1	3.1	87.7
	30	2	1.2	1.2	88.9
	32	3	1.9	1.9	90.7
	33	3	1.9	1.9	92.6
	34	1	0.6	0.6	93.2
	35	5	3.1	3.1	96.3
	36	3	1.9	1.9	98.1
	38	2	1.2	1.2	99.4
	39	1	0.6	0.6	100.0
	Total	162	100.0	100.0	

Table 2. Frequencies for Beck Anxiety Inventory scores.

Descriptive statistics								
	N	Range	Minimum	Maximum	Mean		Std. deviation	Variance
	Statistic	**Statistic**	**Statistic**	**Statistic**	**Statistic**	**Std. error**	**Statistic**	**Statistic**
BAI (0–3)	162	36	3	39	17.67	.758	9.645	93.031
Valid N (listwise)	162							

Table 3. Descriptive statistic for Beck Anxiety Inventory scores.

The data present cumulative results for all participants in the study, which includes adolescents who live in divorced and intact families. These data are confirmed by the data analysis presented in **Table 3**.

In **Table 4**, data on anxiety level of adolescents from divorced families as well as adolescents from intact families are presented. We find out that adolescents from divorced families scored higher (M = 25.43, SD = 6.469) than adolescents from intact families (M = 9.90, SD = 4.823) in anxiety.

Data presented in **Table 4** proved that there are statistically significant differences in anxiety level of adolescents from divorced and intact families (t = 17.322; $p < .05$). These results suggest that divorce has a statistically significant influence on adolescents' anxiety level in our sample.

Variables	Groups	N	Mean	SD	df	T	Sig
Anxiety	Adolescent from intact families	81	9.90	4.823	160	17.322	.003
	Adolescent from divorced families	81	25.43	6.469			

Table 4. Independent samples t-test result on the Beck Anxiety Inventory scores of adolescents from divorced and intact families.

One of the aims of our study was to investigate gender differences in anxiety level of our participants. In addition, we wanted to get an answer on the question if young boys and girls react differently on divorce in the family in regard to anxiety level.

Table 5 illustrates results of two-way ANOVA on the Beck Anxiety Inventory scores of adolescents from divorced and intact families with respect to their genders. As it is evident from **Table 5**, there are no statistically significant differences in anxiety between male and female adolescents from divorced and intact families ($p > .05$). Results indicate that young boys and girls react the same way on parents' divorce, and that divorce is a variable which has an influence on anxiety level, and that gender has no statistically significant influence on anxiety level.

Tests of between-subjects effects					
Dependent variable: BAI (0–3)					
Source	**Type III sum of squares**	**df**	**Mean square**	**F**	**Sig.**
Corrected model	8459.881[a]	3	2819.960	100.696	.000
Intercept	48166.439	1	48166.439	1719.934	.000
Gender	7.984	1	7.984	.285	.594
Parental divorce	8121.297	1	8121.297	289.996	.000
Gender × parental divorce	87.945	1	87.945	3.140	.078
Error	4424.761	158	28.005		
Total	61626.000	162			
Corrected total	12884.642	161			

[a]R squared = .657 (adjusted R squared = .650).

Table 5. Two-way ANOVA result on the Beck anxiety inventory scores of adolescents from divorced and intact families with respect to gender.

6. Discussion and conclusions

Presented research findings served us to explore the issue of anxiety level in adolescents and the way how anxiety level could be connected to parents' divorce. We also wanted to look at the role of gender on anxiety level in adolescents and its relationship to parents' divorce. We have measured the level of anxiety by applying The Beck Anxiety Inventory (BAI) scale. The mutual developmental challenges and identity crises in adolescence period might be connected to the development of symptoms of anxiety in general. The results we got by measuring the anxiety level in adolescents in our study indicated present tendencies of anxiety level in adolescents. Results in **Table 2** explained that anxiety level among participants is not very high. Following the results of frequencies for Beck Anxiety Inventory scale, we can see that the majority of our participants have low level of anxiety. However, our study indicated that 36.4% of our participants have moderate and high level of anxiety, which means that every third participant have some symptoms of anxiety.

Our study indicated that adolescents from divorced families scored higher level of anxiety than adolescents from intact families, and that there are statistically significant differences in anxiety level of adolescents from divorced and intact families ($t = 17.322$; $p < .05$). If we compare the results from frequencies for Beck Anxiety Inventory scale presented in **Table 2** and the results presented in **Table 4**, we can conclude that, most likely, the majority of adolescents from divorced families belong to the group of 3.7% of adolescents who scored 36 and more, which we considered as high anxiety, and that the rest of participants from divorced families belong to the group of 32.7% of participants who scored between 22 and 35, which indicated moderate anxiety.

Those results can be confirmed with the results presented in **Table 5**. Results explored the issue of gender in regard to anxiety as dependent variable and divorce as independent variable. Data proved that adolescents from divorced families and intact families do not vary in their anxiety level in relation to gender in our sample. Our data indicate that adolescents react the same way on parents' divorce, and that both young boys and girls react the same way.

According to Ref. [14] possible reactions of young boys and girls on divorce are different. Young girls react more emotionally, such as early sexual relations, lack of self-confidence, while young boys show aggressive and delinquent behaviors more frequently. Anxiety can be closely related to the mentioned behaviors in boys and girls. Anxiety could be a cause, but also a consequence, of inappropriate behaviors among youth, which indicates the tendencies that divorce, anxiety, and problems in behavior are closely related. According to the same source, school phobia is the most frequent reaction of adolescents on the loss of one parent due to divorce. Our study confirmed this statement considering that school phobia is one of the types of anxiety.

Our study has reached its aims, research hypotheses were proved, and direct findings answered our research questions. In order to broadly explore the issues of family, divorce, developmental challenges in adolescents in regard to anxiety level, it is important to be aware of some of the unavoidable limitations of the study as follows:

This study was conducted in Istanbul Province, Turkey, with 162 participants in total. Therefore, research findings cannot be generalized to all adolescents from divorced and intact families. However, our research findings indicate the tendencies that could be discussed in connection with other research, knowledge, and practices as it is explained below.

Divorce of two persons formally marks the legal termination of mutual life and the division of common property. A particularly important issue is the division of responsibilities for the upbringing and education of children. Possible effects of divorce on the development of child and the connection to anxiety should be observed over a long period of time. Observational period starts from the childhood period before divorce, child's assumption about life after divorce takes place and period of life when child lives with one parent and spends limited time with another one. The period before divorce is most often the period which is marked by problems in parents' communication, whether the communication is insufficient or involves various forms of aggression. Such communication generates a tense atmosphere in family, which creates the feeling of tension and unpredictability for the child. Those feelings directly have an influence on development of fears, feeling of inability to control the situation in the family, which all are a precondition for development of anxiety in young persons. If this situation lasts quite long, which is very often the case, children start to develop very intensive specific fears which cannot be considered as "normal" or "typical" for a particular chronological age.

The parents' response to these fears is often inadequate, and involves the advice that the child should ignore the fears, or these fears are even mocked by them. Over time, children learn to hide their fears, or pretend not to have them at all. The accumulation of hidden fears often results in social phobias or panic attacks in the adolescent period [16].

Another important aspect of divorce begins with bringing the decision that parents will divorce, and the way how they communicate that decision to children. Children are rarely ready for such

a decision, parents often hide that decision in order to protect their children, or to give themselves enough time to accept the fact that they are getting divorced. The moment the child realizes that the parents are getting divorced, the grief process starts due to the breakdown of the family, fears develop about what the future will bring, and a sense of confusion starts to develop about to whom the child should be more loyal, the parent with whom child continues to live, or the one who is "less responsible" for divorce. Living in such a situation is associated with a high level of stress for both the child and parents, which is an additional risk factor for the development of anxiety.

The role and responsibility of parents often change because the conditions in which marital union functions are marked by frequent conflicts, lack of understanding, and violent relations among married partners at times. Parents because of their own problems spend less time with their children, have less patience in communicating with them, and bring their own frustrations into the parent-child relationship. Children often become the object of arguments and unsolved partner relations. In this way, the expected positive role of parents on the development of children becomes an additional risk for the development of psychological problems in youth, which includes anxiety as well. Parents are supposed to provide support, love and understanding, with clearly established rules and limitations, which would provide a good structure for adolescent to overcome developmental challenges and stress because of divorce.

The period of adolescence, besides the developmental challenges already mentioned above, is the period in which stress related to the inadequate family relations is most accumulated. Young persons are very critical toward their parents during adolescence, and the act of divorce for them causes either anger toward their parents because of their inability to solve the problem, or otherwise a complete withdrawal from society and difficulties to define and achieve life goals. In both cases, a young person manifests a high level of frustration and the difficulty of adjusting behavior to the new role an adolescent has.

Findings of the research [29] about the perceptions of youth concerning the values of parenting indicate that adolescents highly value warmth, love, understanding and support of their parents, regardless of the fact that they pay a great importance to their peers at the same time. Parents who are getting divorced or are already divorced often face themselves with the difficulty to provide an emotional support to their children because of personal or environmental reasons.

Our research was conducted on a relatively small sample, and in one geographical area, however, results point to significant tendencies of higher anxiety level in adolescents who grow up in divorced families. The fact that, in this study, we found that boys and girls respond equally to divorce when it comes to anxiety, and that there is no statistically significant differences in gender, further confirm our elaboration. The causes of anxiety can be found in already explained situational, relational, and emotional effects of divorce on the psychological development of youth.

Our research findings should help researchers to explore other components which link divorce, adolescence and anxiety, such as the developmental period when divorce occurred, causes of divorce, support of other family members, additional financial effects of divorce, etc. This study should draw the attention of parents who are getting divorced that support for their children during such process is necessary in all aspects of psychosocial development.

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Chapter 6

Lives Blighted by Trauma - Reflections on Working with Young Refugee Children

Mary Moloney

Additional information is available at the end of the chapter

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Abstract

Every child has a basic fundamental right to survival, protection and education. These and many other rights are outlined in the UNCRC (1989), a legally binding international agreement. Yet the rights of children all over the world are violated on a daily basis, as they flee armed conflict and inconceivable atrocities in countries such as Syria, Afghanistan, Iraq and Eritrea. This chapter which draws upon a reflective journal that documents my experience of working with refugee children and their families in Lesvos, Greece, illustrates the interplay between pre-migration and transmigration factors, and how they affect children and families. Set against the backdrop of the UNCRC, and the EU-Turkey deal, which has resulted in the detention of thousands of refugees, half of whom are children, in Greece, the chapter provides insight into the reality of life for children in a refugee camp. While the chapter explores the issue of trauma, it also highlights children's resilience as they establish relationships with children and adults and engage in play activities in the pre-school and daily life of the refugee camp. However, life as these children once knew it has changed utterly and forever. As families are relocated from refugee camps to European countries, I question whether early childhood educators and teachers have the capacity to meet the needs of children traumatized by war within the context of early childhood and primary school classrooms. Early childhood educators and teachers should not be left with the burden of rehabilitating these young children. Rather, political will is essential to galvanize societal support for systemic investment in national educational systems, and comprehensive supports at multiple levels, child, family, school and the wider community. The time for action is now. Children can no longer wait. This is an issue of basic human rights. The right to survival, health, well-being and education.

Keywords: children's rights, war, refugee, trauma, resilience, education

1. Introduction

The UN Convention on the Rights of the Child (1989) upholds children's rights all over the world. It also draws attention to global injustices as they relate to children and childhood. While there is a universal agreement that early childhood, the period from birth to 8 years, is a significant and unique time, during which children need and have a right: to a standard of living that meets their physical and mental needs; to education; and to rest, recreation and play for example (Articles 27, 28, and 31; [1]), millions of young children are daily denied their most fundamental entitlements to survival, health and well-being. I am of course referring to the child refugees[1] of war-torn countries such as Syria, Afghanistan and Iraq. The children, who with their families, fled their homes because of armed conflict, unspeakable atrocities and/or human rights violations, to undertake lengthy and risky journeys in quest of asylum, legal status and a better life in Europe.

Mindful of the ethics associated with displaying photographs of dead children and families, it nonetheless took such a grotesque image to galvanize many people into action in support of refugees in 2015. Although I had read, and watched with dismay, the many reports of refugees fleeing war-torn countries, the image of 3-year-old Aylan Kurdi, from Kobani, in Northern Syria, will be forever etched on my mind. As I look at the photograph of him lying face down in sea water, near Bodrum, Turkey, I notice he is wearing a bright red t-shirt, dark blue shorts and matching sneakers. His arms lie lifeless by his sides, and he is dead and drowned. Reading the accounts of his death in various media reports on Thursday, September 3, 2015, I learn that his mother and his 5-year-old brother, Ghalib, also drowned, as did 12 other Syrians as they attempted to seek refuge in Greece. Aylan's father, Abdullah, paid €4000 to smugglers, for his family to get on a 5-m-long dinghy from Bodrum to Greece. When the sea became rough, the Turkish smuggler abandoned the dinghy, casting their human cargo adrift. After an hour, the dinghy capsized, but the family clung on. Mr. Kurdi tried to hold his wife and two sons with his arm, but one by one, each was washed away by the waves.

UNICEF [2] claims that no child is spared the horror of the war in Syria; violence is everywhere, ripping apart places that children thought were safe: schools, hospitals, playgrounds, public parks and children's own homes. Children, they claim, have paid the heaviest price of the 6-year war, with almost 6 million children now depending on humanitarian assistance, almost half forced to flee their homes, and some being displaced up to seven times before reaching safety. In excess of 2.3 million Syrian children are living as refugees, many having taken the "death boats" crossing the Mediterranean to Europe ([2], p. 2). Similar stories of destruction, death, displacement and loss emerge from the world's other top refugee-producing countries: Afghanistan, Iraq and Eritrea. Stewart [3] notes that "uncertainty, turmoil and crisis are ubiquitous in the lives of children who have come from countries of war" (p. 16).

[1]Refugees are persons fleeing armed conflict or persecution. Their situation is often so perilous and intolerable that they cross national borders to seek safety in nearly countries, thus becoming internationally recognised as refugees with access to assistance from States, UNHRC, and other organizations. They are so recognised because it is too dangerous for them to return room, and they need sanctuary elsewhere http://www.unhcr.org/en-ie/news/latest/2016/7/55df0e556/unhcr-viewpoint-refugee-migrant-right.html.

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According to the UN High Commission on Refugees [4], 59.5 million people worldwide have been forcibly displaced, and over half of these are children under the age of 18 years. The sheer magnitude of the statistics is overwhelming and serves to depersonalize the refugees behind the numbers. Three-year-old Aylan Kurdi, his 5-year-old brother, and his mother are simply victims, but the photograph of Aylan face down, dead on the edge of the beach, is the human face of what is internationally recognized as the refugee crisis. His lifeless body, lying alone on the beach, is a stark reminder that behind every statistic is a human being, a refugee with an identity. A child with a name, a personality, a past, like Aylan, and Ghalib. Other children, such as Mahmud, Rasha, Niloofar, Emira, Sayid and Amir[2] whom I met while working in a pre-school setting attached to the Pikpa refugee camp on the island of Lesvos, Greece, in December 2016 and August 2017 (5 weeks in total), look forward to getting to "Athena, Allemande and Italy"[3] for a better life, sometime in the future.

Refugee experiences are diverse, and many have suffered severe personal trauma, violence and loss. This chapter which draws upon a reflective journal that documents my experience of working with refugee children and their families, in Lesvos, in 2016 and 2017, including contemporaneous notes of conversations with children and parents, and personal reflections, provides a glimpse of the refugee's experiences of pre-migration and transmigration. MacBlain et al. [5] describe pre-migration as the time spent in the country of origin, the experiences of the families before they leave their home country, whereas transmigration is time spent fleeing away (time spent within the same continent) or time spent living in a refugee camp or time spent travelling to a new host country.

Against the backdrop of the UN Convention on the Rights of the Child (1989) which not only recognizes all children as rights-holders, but also that there are children around the world who need special protection because they live in extremely difficult circumstances (e.g., refugees), as well as the EU-Turkey deal, which has resulted in the detention of refugees in Greece, these entries provide insight into the reality of life for children in a refugee camp. While the chapter explores the issues of trauma, it also highlights children's resilience in early childhood, as they establish relationships with children and adults and engage in play activities in the pre-school and daily life of the refugee camp. However, as families are relocated from refugee camps to European countries, the question as to how early childhood educators and teachers can meet the needs of children traumatized by war is a core consideration.

2. Abandoned on the Greek islands

Just before Christmas, on December 22, 2016, the military groups in the eastern part of the city of Aleppo, Syria, handed over their weapons and began to leave the city. Alsabach [6] explains how the liberation of the eastern part of Aleppo followed 6 years of war, during which hundreds of thousands of people died (more than 300,000), and more than 6 million Syrians became refugees and displaced persons, as they attempted to flee the "unstoppable

[2]All names used in this chapter are fictitious to maintain the anonymity of the children and families.
[3]These locations, Athena, Allemande and Italy were frequently mentioned by the children during my time with them.

river of blood" ([7], p. 9). Likewise, war and persecution in Afghanistan has resulted in a further 6 million refugees, making Afghans the second largest group after Syrian refugees (Duenwald and Talishli) [8], while in Iraq, a report from the UNHCR [9] notes that 3 million Iraqis have been displaced since January 2014.

Because of its location at the crossroads of Europe, Asia and Africa, Greece is a major point of entry for refugees, with 1.3 million people fleeing conflict and persecution having travelled through the country in search of safety and a better life in Europe since 2015. Arrivals peaked in 2015, with 851,316 migrants and refugees entering the country [10] crossing over to the Greek Islands from Turkey [11]. Of the 1.3 million refugees passing through Greece since 2015, almost 480,000 have been children [12].

Following the unprecedented influx of refugees to Greece in 2015, European leaders signed a refugee pact with Turkey on March 18, 2016. Known as the EU-Turkey deal, the intention was to "break the business model of the smugglers and to offer migrants an alternative to putting their lives at risk" [13]. In effect, it sought to reduce the flow of asylum seekers into the EU and calm the refugee crisis. Under the deal, which came into effect on March 20, 2016, Turkey will take back Syrian migrants who reach Greece illegally in return for the relocation of Syrian refugees in Europe, currently in Turkey. In return, the EU would grant visa-free travel to Turkish citizens, accelerate Turkey's EU membership application, and increase financial aid by €3 billion to €6 billion to help Turkey manage the refugee crisis. Finally, the deal specifies that once a number of irregular crossings between Turkey and the EU "have been substantially and sustainably reduced, a voluntary humanitarian admissions scheme to transfer Syrians from Turkey to other European countries would be activated" (Ibid.).

Although the deal claims to protect all migrants in accordance with relevant international standards, and in respect of the principle of non-refoulement (i.e., not forcing refugees or asylum seekers to return to a country in which they are liable to be subjected to persecution), the return of Syrian refugees to Turkey has been heavily criticized. John Dalhuisen, Amnesty's director for Europe and Central Asia says "*Turkey is not a safe country for refugees and migrants, and any return process predicated on its being so will be flawed, illegal and immoral…*" (in [14]).

In a scathing critique, MSF [15] highlighted what they felt were the many consequences of the deal that EU officials fail to mention or acknowledge including:

> *The devastating human consequences of this strategy on the lives and health of the thousands of refugees, asylum seekers and migrants trapped on the Greek islands and in the Balkans, particularly in Greece and Serbia, where they are living in limbo… whether fully implemented or not, the EU-Turkey deal follows the logic of treating people as if they were commodities, with disastrous consequences for the people affected. And … despite evidence of the deadly consequences of their containment policy, European leaders have decided to put the survival of the EU-Turkey deal ahead of asylum seekers' safety and protection* (p. 5).

Notwithstanding Article 22 of the UNCRC, which obliges State Parties "to take appropriate measures to ensure that a child who is seeking refugee status or who is considered a refugee… receives appropriate protection and humanitarian assistance," children's rights have been sidelined by the EU-Turkey deal. Lengthy asylum procedures and a huge backlog have

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left some 62,375 refugees stranded in Greece, of whom 21,300 are children [12]. It is thought that 14,000 refugees are currently lingering on the Greek islands, "*where the harrowing human cost of the deal is laid bare*" [16]. In relation to children, the cost of the deal highlights an abject failure to uphold Article 27 which recognizes "the right of every child to a standard of living adequate for the child's physical, mental, spiritual, moral and social development." In the words of Gogou [16]

> *Not allowed to leave, thousands of asylum-seekers live in a tortuous limbo. Women, men and children languish in inhumane conditions, sleeping in flimsy tents, braving the snow and are sometimes the victims of violent hate crimes*

Based upon my direct experience of working in Lesvos, Gogou's commentary refers in the main to the notorious Moria refugee/detention camp, described to me by a refugee in August 2017 as a "*very bad place… a living hell.*"

3. Pikpa: A safe haven

Lesvos is host to three refugee camps, namely Moria, Kara Tepe and the Lesvos solidarity camp, known as Pikpa. The largest of these, Moria, is a government-run camp which was established as the first "hotspot" registration and reception camp. Upon arrival in Lesvos, all refugees are sent to Moria for registration, and they are legally required to stay there for several weeks upon arrival. However, the asylum process is lengthy and may take up to a year or even longer. Accordingly, the majority of refugees are stranded in Moria in appalling conditions. While the camp was originally intended to accommodate about 1500 people, at the time of writing, 3000+ refugees are stuck in Moria camp.

Diary entries in December 2016 and August 2017 provide insight into life in Moria, as experienced by refugees, who had spent time there, before being transferred to Pikpa.

> *Moria is a very bad place, it's not safe. It's a bad place for me and my children. I am so happy to be here* [in Pikpa], *everybody here is very nice, they help us, give us food and medicine* (Amira: Afghani mother of two children aged 7 and 8, December 12, 2016)

> *I spent 2½ months in Moria before coming here* [Pikpa], *it was terrible. I cried every day. We were not safe there, my children were not safe. Moria is not good. It was a bad place for my children, for me, and my husband, it was not good, Moria is not good* (Yana: Syrian mother of three children aged 3½, 8 and 10 years, August 4, 2017).

Pikpa, near Mytilene, the capital of Lesvos, is the only volunteer-run camp on the island. This open refugee camp has been providing humanitarian support to the most vulnerable refugees, families with children, pregnant women, refugees with disabilities, those with serious medical conditions, and victims of shipwrecks who have lost loved ones at sea since 2012 (www.lesvossolidarity.org.). It stands in solidarity with the refugees and people in need through shelter, protection and awareness rising on the basis of principles of solidarity, respect for human life, non-discrimination, non-violence and volunteerism (www.lesvossolidarity.org). Here, the refugees have access to medical care, education, early childhood education and care, legal assistance, food, clothes and crucially, a sense of dignity and respect. Built on a former

residential holiday campsite, Pikpa currently offers temporary shelter to approximately 106 vulnerable refugees, of whom 44 are children (Ibid.). Refugees in Pikpa live in either a wooden cabin, an isobox (i.e., a metal modular pre-fabricated container), or a large tent, that protects them from the elements and brings structure and routine to their lives.

> *I see women hanging out their laundry on lines between the wooden houses, sweeping the rugs from the floor of their cabin, washing pots and pans, and sometimes, sitting or standing outside, chatting to other residents or volunteers* (August 7, 2017).

On my return to Pikpa in August 2017, I am concerned to find a family with whom I had worked in December 2016, still living there. The mother tells me that she has been a resident in Pikpa for 18 months. "*My concern has nothing to do with Pikpa, but with the length of time it is taking to process their application for asylum"* (August 1, 2017). However, I notice that the youngest child in the family, 6-year-old Amir, who in December "*was fretful and fearful is now a smiling happy little boy, who seems completely at ease in the camp*."

> *This evening, as I was chatting to a core staff member, Kostas, Amir passed by. Kostas swooped him up into his arms and hugged him tightly, proclaiming "I love this little boy, I love him so much." This is how it should be for children, they should feel loved* (August 2, 2017)

Kostas is not the only person to express his love for the children. The manner in which the camp is maintained, the interactions with children, the attention to detail in the pre-school setting, and the outdoor play area, is testimony to Pikpa's desire to make life better for the children living there

> *There is evidence of love all around Pikpa, in the beautifully painted walls which make the surroundings inviting and cheerful for children, in the amazing natural outdoor play area that was constructed during 2017 by a team of Norwegian volunteers, in the exchanges between volunteers, staff and children, a hand on a shoulder, a smile, a high five as a child passes by. The adults delight in the children*
>
> *Children come running to meet volunteers in the morning, and women and men wave and smile from the door of their home, or as they wander about the central outdoor multi-purpose area as we arrive to camp* (August 8, 2017).

The mutual respect between the refugees, the core staff team and the volunteers is clear. Pikpa provides a safe, secure haven for the most vulnerable refugees as they await asylum.

4. Pre-migration. Children's experiences in their home country

Upon my return from Pikpa in December 2016, I wrote: "*the children have seen more in their short lives, than I will ever see in my life-time*" (December 21, 2016). There is no doubt that many of the children have seen things they should never have seen, and have been privy to conversations and experiences that no young child should be exposed to. There is no doubt either that these experiences have a profound impact upon children's psychological well-being, leading to unpredictable and challenging behaviors.

Take the case of Mahmud, an 8-year-old boy living in Pikpa with his mother and two siblings in December 2016. Mahmud's behavior was generally unpredictable and disruptive. He

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found it difficult to apply himself to activities and was unable to sit still for any period of time, preferring instead, to wander aimlessly about the camp. It was "*difficult to know where to begin, how to work with him to support him*" (December 4, 2016). A chance encounter with Mahmud's mother on December 17, 2016, provides the context for his behavior. As Melika speaks Farsi, and has just a smattering of broken English, she gestures for me to come into her home,[4] "*welcome*." The following account, relayed by Malika through broken English, gestures and tears, details the pre-migration factors that forced her to flee her country with her three children.[5]

> *Three years ago, the military came to their house, they cut babo's*[6] *throat. Mahmud who was five years old, was in bed asleep. His brothers (then 12 and 9 years old) were distraught at seeing what happened to babo, and they cried out. The military smashed one boy's hips by kicking him, and the other's thigh bones before throwing both boys on top of their dead father.*

She shows me a photograph of her family, taken prior to the atrocity. In it, she stands smiling beside "Babo" surrounded by their three sons. I notice a swimming tube hanging from the ceiling of the wooden hut, attached to which, is a photograph of a smiling Mahmud. When I point to it, Melika laughs amid her tears and points to Mahmud in the photograph; he uses the tube as a swing. "*A young boy engaging in playful behaviour in the safety of his home, his sanctuary with his mother and brothers. Somehow, I am gladdened by this image, and can imagine the joy he brings to their lives"* (December 17).

Also in December, a 15-year-old girl, Rasha, tells me the circumstances surrounding her arrival in Pikpa. It is Thursday, December 8, we are sitting on a bench, enjoying the winter sunshine. Somewhere in the camp, music is playing, and it carries on the still December air. A simple question, "*do you like music Rasha*" provokes the conversation described here. Rasha "*loves music"*; her mother was a music teacher; she taught "*piano and violin."* Then, four words "*I miss my mother*,"

> *Upon returning from school one afternoon, three years ago, when Rasha was twelve, she found her mother's lifeless body in the rubble of their bombed-out home. The bomb was dropped while she was in school. Her dead, ten year old sister lay further inside the house. Her mother had a large wound to the back of her head. Rasha sat in the hospital with her mother for 3 months, "then she was gone"* [dead].

Rasha and her brother who was two at the time of the bombing fled with their father, finally arriving in Lesvos. Rasha takes antidepressants. She is "*afraid to close my eyes, I see mother in my head*."

In August 2017, it is two young sisters: Niloofar and Emira who provide insight into the pre-migration factors that impelled their family's journey to Greece. They describe how

> *Five members of father's family were killed, including grandfather. They girls are very sad. They miss their country. It is very beautiful. They are sad because they cannot go with water and flowers, for their grandfather, they cannot give him water and flowers*

[4]Melika lives in a wooden house—an open internal space that serves as living room, and sleeping accommodation with her three sons, two of whom are disabled.

[5]The account provided here has been confirmed by the camp coordinator at Pikpa who was aware of the families circumstances at registration in the camp.

[6]Fathers are called babo.

There are glimpses here of multiple losses: the loss of five family members, the loss of their beautiful country, and the loss of being unable to engage in the simple act of visiting and placing flowers on a grave.

Later that day,

> *I heard a story about how the girls' uncle was dismembered by Isil, and I am chilled to the bone. What have these children been through in their short lives? How can they face each day with a smile, full of seemingly happy incessant chattering, playing with their dolls* (August 3, 2017)

The incongruity of the children's pre-migration experiences and my observations of them playing with dolls, caring for their "babies," laughing and chatting with friends is reflected in a journal entry that night: "*There is something so unsettling about watching children playing with dolls, laughing, chatting, going about daily living, knowing the trauma they've been through.*"

I wonder how the children are so resilient, or whether they are suppressing their feelings.

5. Transmigration: Fleeing and living in a refugee camp

As mentioned earlier, transmigration is time spent fleeing away, or time spent living in a refugee camp, or time spent travelling to a new host country [5]. Discussions with children and their parents reveal aspects of their perilous journey to Greece, as well as the post-traumatic stress experienced by them following their arrival in Lesvos.

On December 3, 2016, I accompany Lely (aged 8) and her 6-year-old brother Sayid, to the Mosaik Support Centre[7] in Mytilene, for choir practice. We make the journey from Pikpa to Mytilene by taxi, travelling along the picturesque Aegean coastline. Shortly into the 5-km journey, Sayid becomes increasingly agitated and begins to call out "*sea no good, boat no good, sea no good, boat no good*" as he flaps his hands wildly. I am relieved when the taxi drops us at Mosaik, and walk upstairs with both children.

> *At the top of the stairs, Sayid collapses onto the wooden floor of the ante-room where children wait before being called into the practice room. He curls into the foetal position, and wails. Not knowing what to do, I sit alongside him, place my arms around him, repeatedly saying "its ok, it's ok." I am worried that I am doing more harm than good. At one point, I look up to see his sister standing in the opposite corner, silent tears running down her face He wails for 30 minutes, gets up and walks quietly into the other room where he joins the children for the last 20 minutes of choir practice* (December 3, 2016).

Following choir practice, as we walk along the street from Mosaik toward Mytilene town center, "*a small hand finds its way into mine, Sayid. He smiles broadly as he places half a mandarin orange into my hand. Friendship, trust, safety?*" (December 3, 2016).

[7]The Mosaik Support Centre is a collaborative project run by Lesvos Solidarity and borderline-Europe. Mosaik aims to move beyond immediate crisis response and to offer sustainable structures to support refugees in their resolve to live with dignity. Bringing together over 630 students aged 4 to 89, from 20 countries, Mosaik offers language courses in English, Greek, Arabic and Farsi, legal support for asylum applicants, vocational training in arts and crafts, upcycling workshops, music and dance classes, daycare for young children, and cultural events supported by artists, activists and organisations from across the world.

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Media reports frequently relay accounts of dangerous boat journeys as refugees attempt to find a safe place to live or reunite with family members scattered by war. But what is it like to be a child on that journey? Niloofar (10 years old) tells me she came to Greece with her family in a "*rubber boat*."

> *It was night time, dark and very scary. The children were told to be quiet. If you fall, nobody would know, nobody would see you, there were so many people, nobody would see you, you would go down, down, down* (August 3, 2017).

Having survived such a traumatic sea crossing, children must then adjust to life in a refugee camp. Yana, the Syrian mother mentioned earlier, shares a brief insight into her life living with her family in Pikpa. As discussed, prior to arriving in Pikpa, the family had lived in Moria for 2½ months. Yana describes Pikpa as "*good, very good*." Notwithstanding her praise for Pikpa, she indicates her wish to leave as soon as possible. Why? "*I want a house for me, my husband and my children. Just us, nobody else*." These families have lost so much. While they have fled war and strife, the sacrifices have been enormous. Not only have they lost family members, their homes and their jobs, they have lost their identity and their autonomy. They are refugees. They have had to adjust to communal living, where everything they do happens in the public eye.

Another mother talks about the monotony of every day:

> *You get up. Some days, I don't want to, but I must. I must get up for the children. I wash, they wash, prepare the breakfast, eat the breakfast, tidy up. Wash the plates. Every day over and back, over and back to wash plates. Clean the house. Cook dinner, wash the plates. Walk around, talk to people. Go to bed. Every day it is the same*

This account also gives an indication of this mother's mental well-being, an issue that is echoed in the following conversation with Yana, who describes how the heat and the noise create difficulties for her and her children

> *It is so hot in the house at night*[8] *we cannot sleep. There is no air. Why are there so many planes at night? All night long, we hear the planes from the airport.*[9] *It is too much- the heat and the noise. I am so tired, always so tired. I cannot sleep, and my children cannot sleep.*

Transmigration phases vary in length, leaving the refugees in limbo. Although Pikpa provides a safe haven for refugees and provides for their basic needs, the longer refugees are forced to wait for a decision on their asylum application, the more uncertain, disappointed, frustrated and anxious they become.

6. Children's learning and development

The pre-school setting at Pikpa provides a safe space both indoors and outdoors for children to play, socialize and relax. It is open Monday to Friday from 10.00 am to 1.00 pm. Premised

[8]Yana lives with her husband and three children in a wooden house which is an open space not divided into individual rooms, and so it simultaneously serves as living and sleeping space.
[9]Lesvos airport is located 3 km approx. From Pikpa.

upon the Irish Early Childhood Curriculum Framework: *Aistear* [17], activities focus upon well-being, identity and belonging, communicating, exploring and thinking. The pre-school provides structure and routine for children.

Children's attendance tends to be erratic. They may attend for 20 min, play with playdough, work in the home corner, make a puzzle, or paint a picture, and then they disappear. Some children will stay longer, while others will come, just for the daily snack. A diary entry on December 8, 2016, documents my frustration with this approach to attendance; "*I am finding it really hard to adjust to children coming and going all morning. One minute you're working with them, next minute they're gone. This is impossible.*"

The fact is that many children have difficulty concentrating, are irritable, and have outbursts of rage, which make it difficult for them to commit to the setting. Overtime, and as my understanding of their circumstances grows, the flexible approach to attendance makes sense.

> *Regardless of what time they arrive, or how long they remain, whether for 15 minutes or an hour, each child has the freedom and opportunity to play, to relax, to just be 'a child' during that time*

Two brothers (aged 7 and 8) arrive daily around 10.30 am. They do not interact with any of the other children. Their sole activity is painting. Each stands side by side at a makeshift easel, and paint a picture of a boat on water, against the backdrop of a blue sky. When finished, they stand back, look at their pictures and leave. Occasionally, they remain for snack. This ritual continues from December 3 to 13, when instead of going to the painting area as normal, one boy "*went to a table set up with markers, colouring pencils, A4 sheets, glue, and glitter.*"

> *He drew a bowl of fresh fruit (bananas, grapes, oranges and strawberries). His recall and attention to detail is amazing. His mother came with some food for the boys (cooked beetroot). As she admired his drawing, she revealed that she is an artist, and she wishes for the boys to be creative. She also says that her son has drawn a vase of flowers from their home*

As recorded in my reflective journal, "*I wonder what it was that prompted him to draw a picture from his home, rather than paint the usual picture of a boat today.*"

Much of the learning results from impromptu opportunities, made possible through a well-prepared learning environment. For example, a bath of dry sand strategically placed outside the isobox, which houses the pre-school, provides the perfect opportunity for 2½ -year-old Mariam, and two friends to spend an hour walking over and back to the water taps located in the center of the camp, filling beach buckets, pouring the water into the bath of sand, as they wonder "*why is it* [the sand] *messy now.*"

> *There was so much learning going on. Cooperation, teamwork, conversation, discussion, negotiation, bending, lifting, pouring, hand-eye coordination, sensory development. The list is endless. And the children were having so much fun, all self-directed* (December, 13th)

Learning opportunities are not always joyous occasions. Indeed, the following day, December 14, 5-year-old Amir vents his frustration as Mariam plays with a toy he wants. Refusing to wait his turn "*he placed both hands around Mariam's neck and squeezed with all his strength. It was almost impossible to get him to release, his rage was out of control.*" There are numerous similar

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episodes involving other children who frequently lash out, gritting their teeth, balling their hands into fists, biting, kicking and screaming.

Many innovative approaches are utilized by volunteers to help children deal with their emotions. Two such approaches involve creative art therapy and dance/movement therapies to promote emotional stability, self-regulation and to build relationships. Through these approaches, children are helped to develop their sense of self, and others, impulse control, interpersonal boundaries, social skills, coping skills and trust.

In the lead up to Christmas, 2016, children in Pikpa, like children all over the world, are busy preparing: baking, making decorations, crafts, painting and so on. Parents are invited to join the children for a craft workshop on December 7 at 3.00 pm for 1 h.

> *The tent was alive with the sound of chatter. Mother and children worked together in groups. One man came, and some women who did not have children, and worked together, laughing, chatting and interacting with the children. What am amazing experience? So many parents and children working together, sharing ideas, materials, and learning from each other. Parents and children were still working happily together at 6.00 pm with no sign of finishing*

Likewise in August, a baking activity results in a shared learning experience involving Yana, her two daughters (aged 8 and 10) and their two 10-year-old friends. The girls had accompanied me and another volunteer to Mytilene, the previous Friday (August 4) to purchase ingredients for a cake they wished to make as part of the pre-school program.[10] We have use of the communal kitchen on Monday, August 7, from 10.00 am to 11.30 am. "*The excitement was palpable as they set about organising the ingredients, and cooking utensils required for the cake.*"

> *Their knowledge of baking was impressive, as they beat eggs and sugar, threw in the requisite amount of flour, baking powder (no weighing required), and turned on the oven. As the activity progressed however, they became increasingly agitated, arguing among themselves in their own language, storming about, and shouting. A heated argument about the amount of chocolate to use resulted in one of the girls heaping a large amount of chocolate like substance into the mixture. The resultant mixture was lumpy.*

Two girls storm from the kitchen. Yana returns with the girls, and following a brief discussion, *she set about beating the mixture with a spoon until it was creamy and free of lumps. Her 8 year old daughter claps her hands, 'I knew my mother would know what to do.'* While the cake is baking, Yana tells me that she and her husband were professional bakers in Syria and had run their own business. More loss.

7. Access to education

Article 28 of the UNCRC recognizes the right of the child to education. With a view to achieving this right progressively, and on the basis of equal opportunity, States shall, among other things, "make primary education compulsory and available free to all." While Bačáková [18] argues that school and the school environment are critical to facilitating the successful integration of refugee children and adults in a new society, Stewart [3] suggests that education is

[10]Older children attend the pre-school during the summer.

a catalyst for change and that schools are where most children want to be (p. 9). On August 31, 2016, the Greek Parliament adopted a Law (Law 4415/2016) which allows for refugee children aged between 6 and 15 years to attend school in Greece [19]. Accordingly, all refugee children have the right to access school, provided that they are vaccinated.

Within 2 days of arriving in Lesvos in August 2017, children show me their arms, indicating they just been vaccinated, so they can start school in September. They are proud of their bravery, "*it hurt, but only a little bit. I did not cry.*" They have been well prepared for the after-effects of vaccination and know they "*might have a fever, maybe not in the day, but in the night.*"

Amir's mother chats about the importance of education for her son… "*education is everything.*"

> *When her first son was born, she taught him his ABCs, and 123s. There were always books, and he went to school, until he came to Greece at the age of 13 years. She hasn't done any work with Amir. He had the pre-school in Pikpa, and besides, she is very busy with her third child who has Special Educational Needs. School will be very good for Amir, he will have a future with education.*

She regrets that her oldest son "*has not opened a book*" since arriving in Greece. She does not want this for Amir and is "*so happy he has the opportunity to go to school.*"

Children are excited, and looking forward to going to school. On August 7, three girls greet us as we arrive to camp. They chant "*thirty more days to school, thirty more days to school."* When asked what they are looking forward to, they indicate "*making new friends," "learning new things"* and "*going to school on the bus.*" Yana joins in their excitement, laughing and repeating *"thirty more days to school."* She too is "*happy for them. It is good they go to school.*"

As the discussion continues, the girls tell me what they would like to do when they leave school. All three want to go to university, "*maybe in Allemande*" one tells me. University is necessary to enable them to become "*a doctor. I want to save people who are sick,*" or "*a police man. I will protect you,*" or "*a baker, I love making cakes like my mother.*" Laughing, they are adamant that they will not "*get married until we are 27*" why? They want "*freedom. I do not want my husband telling me what to do, wash the cups, get the dinner, wear this, wear that.*" Again, Yana laughs, "*they want freedom.*" Reflecting upon the girls' discussion, I write: *why am I not surprised that these girls want to help other people? Have they been influenced by their experiences? And what about, their views on marriage, so insightful. Change is on the way, next generation.*

8. Discussion and conclusion

As discussed throughout this chapter, the rights of refugee children are been completely violated by armed conflict and unspeakable atrocities. These children experience change in almost every aspect of their lives: family structure, schooling, community, friends, culture and the overarching society in which they live ([3], p. 21), and life as they once knew it has changed utterly and forever. The reflections in this chapter illustrate the interplay between pre-migration and transmigration factors, and how they affect children and families. Children's psychological well-being is severely compromised by their experiences. Mahmud who was 5 years old, at the time of his father's brutal murder, and vicious maiming of his brothers, is

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aggressive and disruptive. Fifteen-year-old Rasha who returned from school, aged 12, to find the bodies of her mother and 10 year old sister in their bombed out home, is afraid to close her eyes because she sees her mother in her head. Ten-year-old Niloofar instantly recalls her fear of falling from the rubber boat during the perilous journey to Lesvos. She and her sister Emira lost five members of their family and mourn the loss of their country, their dead family members, and miss being able to place flowers on their grandad's grave. Six-year-old Sayid breaks down following a taxi journey along the Aegean coastline, but gathers himself together and continues with choir practice in Mosaik. These children's lives are blighted by trauma.

One year on from the EU-Turkey deal, Medecins Sans Frontiers [15] reports that anxiety, depression and aggression are on the rise, with children as young as nine, cutting themselves, attempting suicide and using drugs to cope. Worryingly, two children (aged 10 and 15) whom I met during my time in PIKPA have attempted suicide. McMullen et al. [20] suggest that while post-traumatic stress disorder (PTSD) is the most researched mental health difficulty in war-affected children, other consequences can include depression, aggressive behavior and social difficulties. These issues which are pervasive within the refugee population represent an outrageous abuse of children's human rights, including the right to an identity; to special protection; to an appropriate standard of living; to education; and to play and recreation [1].

The situation for child refugees is indefensible and unacceptable. It screams injustice and undermines the UN Convention on the Rights of the Child. On a daily basis, children are denied their most fundamental entitlements to survival, health and well-being. Marie-Pierre Poirier, UNICEF Special Coordinator for the Refugee and Migrant Crisis in Europe, urges us never to forget that "children on the move are first and foremost children, who bear no responsibility for their plight, and have every right to a better life" (in UNICEF) [2].

This poses a challenge for the education system, as refugees are granted asylum, or relocated through the EU relocation and resettlement program to countries such as Germany, Finland, Ireland and Sweden. According to the UNHCR [21] "access to education is a fundamental human right, and States have an undisputed obligation to provide access to education for all children" (p. 5). States should do everything possible to ensure that education is of the highest quality and meets the needs of all learners (ibid.).

Just because children are relocated does not mean that the trauma disappears. For many children, traumatic experiences can lead to problems with academic performance, inappropriate behavior in the classroom, and difficulty forming relationships [22]. In considering the challenges that lie ahead for refugee children during post-migration (life following asylum, or relocation), the capacity of the education system to address their complex needs warrants attention. Stewart [3] summarizes the difficulty: "*A refugee child may come into the classroom after witnessing the most inhumane acts of violence, and be expected to follow along with the lessons-to do as the others do. But this is unrealistic*" (p. xviii). School may well provide consistency and routine for children displaced by war and persecution, but can traumatized children learn if their psychological well-being is not addressed? Are early childhood educators and primary school teachers equipped with the knowledge and skill required to work with these troubled children? Are they prepared to use flexible and innovative approaches with children who only have the capacity to remain in classroom for 30 min or half an hour?

According to Digidiki and Bhabha [5] the refugee crisis has created a need for specially trained practitioners. UNESCO [23], for example, indicates that one of the barriers to inclusion in national education services can be the language of instruction, where the language in the host country differs from that spoken by refugees. Consequently, programs that use rigorous second-language teaching methods are essential (Ibid.). Citing a psychologist working with children in Greek refugee camps, UNESCO claims that many of the people hired to work with the children do not have appropriate training and knowledge, and caution that:

> *A certificate or attendance at a seminar does not qualify someone to work with children suffering from trauma. Even trained practitioners, dealing with the complex trauma and risks that children face on a daily basis can find the circumstances overwhelming and challenging. […] Supporting children's resilience requires time, patience, and a protective environment* (UNESCO, p. 32).

Time, patience, and a safe environment. Such a simple ask. Yet it underscores the complexity of the task ahead for early childhood educators and teachers with regard to creating a safe and secure learning environments where traumatized children can make friends and establish positive relationships with educators, teachers and other adults within the setting/school. While emotionally safe environments are critical to inclusive practices (Moloney and McCarthy forthcoming), in the context of children traumatized by war, multilevel interventions are essential, for example, at the level of child, family, school, and the wider community.

Early childhood educators and teachers should not be left with the burden of rehabilitating these young children. They should not be expected to work in isolation. It is imperative that educators, teachers and highly trained professionals work collaboratively to provide a continuum of care, education and ongoing support for children and families.

Alongside this, educators and teachers must engage in intensive continual professional development opportunities so that they understand how traumatic experiences impact children's capacity to learn, establish relationships and trust. Training must also focus upon understanding culturally diverse practices. Moreover, as part of a long-term strategy, political will is essential to galvanize societal support for systemic investment in national educational systems and to ensure adequate staffing (including second-language teachers and translators), resources, and additional supports as necessary are available to adequately include children within the educational system and build knowledge and skills for self-reliance and resilience. The time for action is now. Children can no longer wait. This is an issue of basic human rights. The right to survival, health, well-being and education.

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Chapter 7

Children and Young People's Vulnerabilities to Grooming

Jane Reeves, Emma Soutar, Sally Green and Tracy Crowther

Additional information is available at the end of the chapter

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Abstract

Child abuse is evolving, pervasive and complex and children are vulnerable to its widespread reach in many aspects of their lives, from face-to-face interactions to those they have online. This chapter aims to review contemporary literature which outlines the vulnerabilities of children to face-to-face and online grooming as part of a process leading to child abuse and exploitation. The chapter will undertake a review of literature on two aspects of grooming: child sexual exploitation (CSE) and radicalisation. It will draw on contemporary case examples to illustrate grooming drawn from UK Serious Case Reviews (SCR) on CSE and, on radicalisation, the case of the three girls from Bethnal Green who were groomed for travel to Syria. It will then reflect on the push and pull factors of grooming to highlight the similarities between CSE and radicalisation. Moving on, the chapter will then consider how and if interactive social media simulations, linked to an innovative, preventative educational approach and designed with reference to Vygotsky's social construction theory, have the potential to educate young people to help protect them from being groomed. The chapter will then make reference to the findings of a small pilot study which evaluated the use of this approach with young people.

Keywords: child abuse, grooming, preventative learning, simulations, radicalisation, child sexual exploitation

1. The context of grooming in the UK

While many children across the globe experience happy, secure childhoods, amassing the skills to help them thrive into adulthood, many are abused in the most horrific and sustained ways possible. UNICEF in a report from 2014 [1] estimate that around 120 million girls worldwide (about 1 in 10) will have experienced forced intercourse or other forced sexual acts at some

time in their lives; a shocking almost incomprehensible amount. Child abuse is an evolving, pervasive contemporary social problem for humanity, but for some it is a multi-million pound business with transactions carried out on the 'dark web' via the internet as well as face-to-face in contact abuse. Some young people are born into this type of abuse in families or community circumstances or latterly in the form of trafficking and modern day slavery, others are groomed into being abused. 'Stop the traffik' [2] estimate that 600,000–800,000 men, women and children are trafficked across international borders each year with an approximation of 80% women and girls. Up to 50% are estimated to be minors. A recent report by The Children's Society [3] estimates that '*The scale of child trafficking, as officially monitored, has increased by 55% between 2012 and 2014 and the numbers of boys and young men trafficked has more than doubled in the same period*'—though the recorded levels are widely regarded as underestimating the issue.

Grooming children and young people into abuse in the form of CSE, to be trafficked into becoming slaves and victims of multiple abuse as well as for radicalisation and terrorism, is now a well-documented 'process' [4]. Vulnerable young people are targeted, often online, and groomed via different social media, as well as face-to-face, to become victims of abuse or to commit or contribute to terrorist offences. Serious Case Reviews in the UK on CSE [5–8] and radicalisation [9] clearly document the consequences of this for the victim, professionals and policy makers.

Grooming is currently defined in the UK by the NSPCC as: '*when someone builds an emotional connection with a child to gain their trust for the purposes of* ***sexual abuse***, ***sexual exploitation*** *or* ***trafficking****. Children and young people can be groomed online or face-to-face, by a stranger or by someone they know - for example a family member, friend or professional. Groomers may be male or female. They could be any age. Many children and young people don't understand that they have been groomed or that what has happened is abuse*' [10].

Many children and young people are consequently at risk of being groomed. In the UK Ofsted, the Office for Standards in Education, Children's Services and Skills, who inspect and regulate services that care for and educate children and young people, require organisations to teach children and young people about being groomed: '*…how to keep themselves safe from relevant risks such as abuse, sexual exploitation and extremism, including when using the internet and social media*' [11].

However, this is a difficult and complex task, often requiring specialist knowledge. Research suggests that many professionals do not feel equipped to tackle these issues, particularly in relation to radicalisation, where lack of appropriate training impacts on practitioner confidence [12, 13]. Brighton and Hove SCR on siblings W and X indicates how the social workers in this case lacked the knowledge, experience and training to deal with radicalisation [9].

2. Vulnerabilities to being groomed

Risk factors for being particularly vulnerable to CSE are identified in literature and SCRs and include those listed in **Table 1**.

Having a prior experience of neglect, physical and/or sexual abuse;
Lack of a safe/stable home environment, now or in the past (domestic violence or parental substance misuse, mental health issues or criminality);
Recent bereavement or loss;
Social isolation or social difficulties;
Absence of a safe environment to explore sexuality;
Economic vulnerability;
Homelessness or insecure accommodation status;
Connections with other children and young people who are being sexually exploited;
Family members or other connections involved in adult sex work;
Having a physical or learning disability;
Being in care (particularly those in residential care and those with interrupted care histories);
Sexual identity.

Table 1. Vulnerabilities to CSE.

CSE has been identified as being widespread in some areas of the UK, with several cases highlighted in the local and national press following court appearances of perpetrators, often gangs of men, and subsequent serious case reviews [5–8]. CSE can affect all ages and is described as happening when:

'*...an individual or group takes advantage of an imbalance of power to coerce, manipulate or deceive a child or young person under the age of 18 into sexual activity (a) in exchange for something the victim needs or wants, and/or (b) for the financial advantage or increased status of the perpetrator or facilitator. The victim may have been sexually exploited even if the sexual activity appears consensual. Child sexual exploitation does not always involve physical contact; it can also occur through the use of technology*' [13].

The consequences of being groomed for CSE are considerable for each young person (**Table 2**) and some extreme cases have resulted in young people being murdered (see for example the cases of

'*It all began when I was about 12. They* **gave** *us more than my mum could*'
'*It was* **exciting** *– Asian boys with flash cars. They made me* **trust** *them for months. I was their* **friend**'.
'*When the grooming started they were so* **kind and nice**. *They were a lot older. It was* **flattering**. *Then things started to change*'
'*They took us to a field where there were other men who came to have sex with us. I tried not to do it. There were* **five** *of them*'
'*They threatened to* **blow my house up** *with my mum in it. I was expected to do things: if I did not they said they would come to my house and burn me alive*'
'*I turned up at the police station at 2/3 am, blood all over me soaked through my trousers to the crotch. They dismissed me as being naughty, a nuisance*'
Oxford Gang rape victims [7]

Table 2. CSE: why do young people get drawn in?.

Breck Bednar [14] and Kayleigh Haywood [15]), suffering long term physical and psychological trauma [13] and being groomed into gangs [16] a life of crime, drug and alcohol related activities [17].

In terms of understanding grooming in the context of radicalisation in the UK, schools, colleges, Universities and health and social care organisations are obligated under the Prevent Duty to address radicalisation with children, young people and young adults:

'In *order for schools and childcare providers to fulfil the Prevent duty, it is essential that staff are able to identify children who may be vulnerable to radicalisation, and know what to do when they are identified. Protecting children from the risk of radicalisation should be seen as part of schools' and childcare providers' wider safeguarding duties, and is similar in nature to protecting children from other harms (e.g. drugs, gangs, neglect, sexual exploitation), whether these come from within their family or are the product of outside influences*' [18, 19].

The Channel vulnerability assessment framework [20] outlines 22 factors that may cause someone to engage with a terrorist group, cause or ideology. The list is designed to assess whether individuals need support to safeguard them from the risk of being targeted by terrorists and radicalisers. These factors have been contested, including human rights groups who claim that the assessment framework is divisive and stigmatises and alienates segments of the population [21].

It has also been recently argued [13] that the way harm manifests in radicalisation can be quite different to CSE. Young people targeted do not have to be 'vulnerable' in the CSE sense (for example being in care) they can be well educated and well cared for as in the case of the three Bethnal Green girls (**Table 3**). As a consequence, some young people may not have overt signs of being groomed; for example, they often do not go missing for extended periods of time, as with grooming for CSE. Detection of this type of grooming may well require a detailed examination of their social media profiles and online activity.

On Tuesday February 17th 2015, CCTV cameras at Gatwick airport captured Amira Abase, Shamima Begum and Khadiza Sultana, clearing security checks before a flight. The three young girls (aged between 15 and 16 years old) boarded a Turkish airline's flight to Istanbul, on the first phase of their journey to join ISIS. This collection of images of the three girls has become synonymous with the phenomenon of female migrants to ISIS territory, particularly within British consciousness [22].

The girls travelled to Isis Syrian stronghold of Raqqa and all three girls were reported to have become 'jihadi brides'. All contact with the girls was lost in mid-December—around the time British, American and Russian warplanes stepped up their bombardment of Raqqa and Kadiza Sultana is believed to have died in May 2016, raising fears for her two classmates—whose fate remains unknown.

The girls attended Bethnal Green Academy and were hardworking, straight A' students who formed a close-knit friendship group. It is well-documented that Isis has specifically targeted western women (at least 100 of the more than 800 people who have travelled from Britain to Syria are female), using female propagandists to offer practical advice and sell a utopian vision of the sisterhood on offer in Islamic State. The online recruiters are prolific and online grooming played a role with the Bethnal Green girls. However the group psychology of this close-knit friendship was also crucial. One of the reasons the case made such an impact was that it was the first widely known example of a group of women radicalising together offline.

The number of Britons joining Isis has slowed, thanks to better policing in the UK and the loss of Isis caliphate. They no longer place such emphasis on convincing people to travel to Syria, but have changed their strategy to encourage radicalised cells at home.

Table 3. The case of the Bethnal Green girls.

3. The 'process' of grooming

'*Today, online grooming has a whole new use. Radicalising young, impressionable minds by extremists. If you're young and struggling to find your place in the world, and someone appears to understand you, that makes you vulnerable. Many children and young people are unaware they are being controlled. Groomers will hide their true intentions, often spending a long time gaining a young person's trust, slowly manipulating their thoughts so they can begin introducing their twisted ideologies*' [23].

Young people are naturally inquisitive and keen to explore new avenues and ideas. When ideas are shared on-line, and an apparent likeminded person replies reiterating their beliefs and opinions, this can increase vulnerability to grooming. Grooming for radicalisation in particular does not necessitate face-to face meetings, highlighting the power of the internet and social media in covert grooming. Five hypotheses identified in the literature [24] links the internet with increased opportunities to become radicalised; it acts as an 'echo chamber' to find like-minded individuals, accelerates the process of radicalisation, increases opportunities for self-radicalisation and allows radicalisation to occur without physical contact. In the case of Breck Bednar there were several months of grooming activity via online gaming sites prior to meeting his attacker Lewis Daynes. During this time Daynes groomed Breck to be anti-establishment and anti-government. Breck was told by Daynes that he has contributed to Daesh through making money from his computing business. Just months after the grooming started Daynes lured Breck to his address and murdered him in a sexual motivated attack. This is thought to be the only time the two had met in person. Links between the sexual exploitation process and that of radicalisation can clearly be seen in this case [14].

Such is the power of grooming, in cases of CSE, victims may be coerced into initially sending indecent images or making videos while radicalisers can convince someone to create a homemade device without directly meeting them. The internet acts as a place where individuals find their ideas supported and echoed by others, giving them a misplaced sense of empowerment and belonging.

Because the outcomes of being groomed for CSE or radicalisation are often very serious, resulting in serious injury trauma and death, it is often assumed that the process of grooming is therefore aggravated or aggressive. Groomers, however, are often quite sophisticated in their approaches, often unknowingly adopting techniques more usually associated with attachment; providing a 'secure base' or a 'safe haven' for individuals while they flatter, accept and 'nurture' them. Young people are often drawn to groomers' because of a need for 'attachment or affection' [25, 26]. While the threats and fear do materialise, as indicated by the quotes from the Oxford Serious Case Review in **Table 2**, the initial approaches, whether face-to face or online will often be enticing and flattering, often accompanied by gifts, in order to facilitate trust and confidence.

It is often argued that grooming is a 'process' with clearly defined stages leading to the ultimate end goals of sexual abuse or radicalisation, however face- to-face and online grooming often have different starting points and consequently variables may be different. Moreover, a *process* suggests a linear route and this may not necessarily be the case as one or more grooming techniques can be occurring at the same time. Consequently, rather than a 'process' grooming can be visualised as more of a matrix (**Figure 1**) with some, many or all of the following features slotting together and overlapping in time and context:

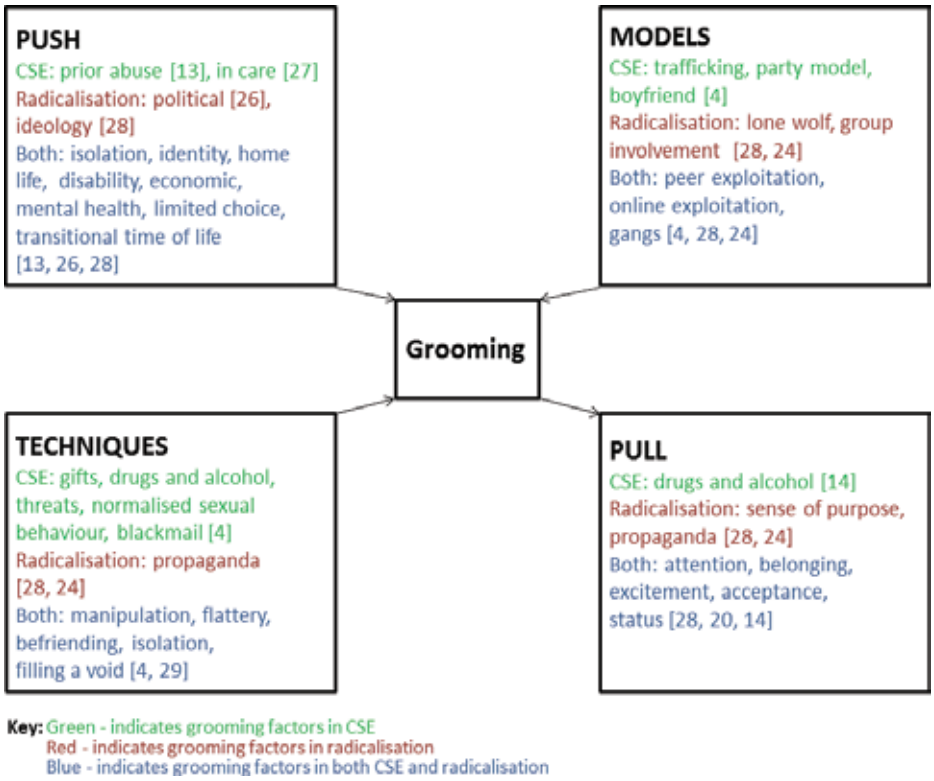

Figure 1. The grooming matrix [4, 13, 20, 24, 26–29].

4. How do we currently try to protect children and young people from being groomed for radicalisation and CSE?

Because grooming is such a serious and widespread social problem on and offline, educational resources from a variety of sources have been produced to work with children and young people on the topic (see **Table 4**).

Many of these resources are used as part of personal, health and social education (PHSE) in schools in the UK and some are very impactful, delivering clear messages via a popular medium of film. However, because some are often film based they are essentially 'passive' tools for young people. Film based approaches, while popular with students and teachers alike may also have drawbacks [30] and may not involve learners in the development of critical thinking and analytical skills so important for evaluating the myriad of information often inundating young people in their daily lives through social media [31]. A clear example of this is the current trend towards 'fake' news, often celebrity related which can be hard to evaluate truth from fiction.

CSE	Web Links
Thinkyouknow	www.thinkuknow.co.uk
NSPCC	www.nspcc.org.uk
Childline	www.childline.org.uk
PACEuk.info (Parent Against CSE)	http://paceuk.info/
Blast project for boys	www.mesmac.co.uk/projects/blast/for-boys-and-young-men/information
See me hear me!	www.seeme-hearme.org.uk/
Radicalisation	**Web Links**
Educate against hate	http://educateagainsthate.com/parents/how-to-talk-to-your-child-about-extremism/
Let us talk about it	www.ltai.info/
FAST	familiesmatter.org.uk/
Addressing extremism and radicalisation lesson plans	www.pshe-association.org.uk/curriculum-and-resources/resources/addressing-extremism-and-radicalisation-lesson
Prevent Education for Schools	www.preventforschools.org/download/file/mmu-learning-together-to-be-safe.pdf
Stop It Now	www.stopitnow.org.uk/
Kayleigh Haywood story	https://leics.police.uk/categories/kayleighs-love-story-film
Breck Foundation	www.breckfoundation.org/

Table 4. Resources on CSE and radicalisation in the UK for use with young people.

5. Using simulated learning

Simulated learning is used in many different contexts with adults and with children and young people. Simulation can, however, mean different things in different contexts. From a simulated suite of learning at UWE, which is in fact a physical learning ward, to using actors with young people in mental health, as well as attending a school in Second Life [33], these are all considered simulations [32].

However, using simulations in child protection are in their infancy [12, 34]. The Centre for Child Protection at the University of Kent is at the forefront of this development and has now created, by working in partnership with health & social care, law enforcement and education organisations, seven simulations on different aspects of child protection, designed for use with both professionals and young people.

Simulated learning is associated with a tranche of associated benefits; they are engaging [35]; promote good discussion [36]; offer opportunities for immersion & interaction in a 'safe' space [37] allowing individuals to take risks safely. Perhaps of most significance however, is that they offer experiential learning [38] which many people thrive on and they are learner centred rather than teacher led: the 'teacher' becomes the facilitator rather than disseminator. With young people in particular it is argued that 'virtual role play allows students to develop 'embodied empathy' for complex social systems' [39].

Drawing on social constructionist educational theory, it can be argued that in order for children and young people to develop into individuals who can reflect and evaluate knowledge, they need to be *active* learners and develop skills of *critical self-reflection*, which they are prepared to apply to their worlds and themselves [39]. Learners do this at different rates and times and some may not have opportunities to develop these skills at all. It is suggested by Barnett [40] that to become critical beings young people have to 'think collaboratively' and this must be sustained through shared activity and discourse around collective standards in a community'. Wass [41] argues that Vygotsky (1896–1934) conceptualised the zone of proximal development (ZPD) [42] to help teachers assist people to develop skills beyond their immediate reach, and this can include critical thinking. He argued that ZPD is the difference between what a learner can do on their own and what he or she can achieve with help. Put simply teachers, peers, activities and some learning environments can help develop critical skill via scaffolding: structuring an issue clearly and problematizing it.

In terms of answering the question posed by this chapter what can be done to prevent children and young people being groomed? Part of the answer may lie in designing interactive content on grooming for young people which is just beyond their reach which, as a consequence, then stimulates them to interrogate the issue. It is often easy to develop ***passive*** learning information on radicalisation and CSE, including films, listening to visiting speakers, and watching actors. These resources can be positive as they can simplify key information on these complex and emotive topics which then leads to discussion. However, these type of activities often provide a 'structure' through radicalisation or CSE where the ***solutions are often provided*** in the film or by the presenter or actors. An alternative model could be to scaffold an issue, including the complexities & problems, (which may be just outside of a learners reach) and with help allow the learner to work through the scaffolding to develop their critical thinking, reasoning and evaluation skills on the topic. As Wass [41] suggests 'Scaffolding allows students to identify and solve the educative problems, while structuring removes these problems for the student'.

In the simulation 'Looking Out for Lottie' on grooming and CSE, we follow the life of 14 year old Lottie through four different social media site, including a vlog. We have access to her social media and her private 'phone messages, allowing learners to interrogate her life, build rapport with her and evaluate events in her life as they unfold. The simulation is split into separate scenes and in each scene the learner (preferably in small groups to promote community thinking mentioned earlier) completes a set of questions reflecting on the social media content and on their own experiences. Using the 'boyfriend' model of grooming, set out in **Figure 1**, users find and are exposed to indicators of grooming and how manipulative and focussed groomers can be to achieve what they want. The final scene is, uniquely, from the groomers' perspective so learners are able to understand the motivating factors and consequences for Jake as a groomer.

In the simulation 'Maryam and Joe: Behind Closed Doors' learners follow BBC and Sky news clips on radicalisation and are able to follow two storylines to analyse how different characters respond to the same news events and evaluate, through the characters social media sites and private messages, how these events impact on their lives. Again learners are interrogating information via social media, looking for the groomers and critically evaluating how the characters

http://dx.doi.org/10.5772/intechopen.71672

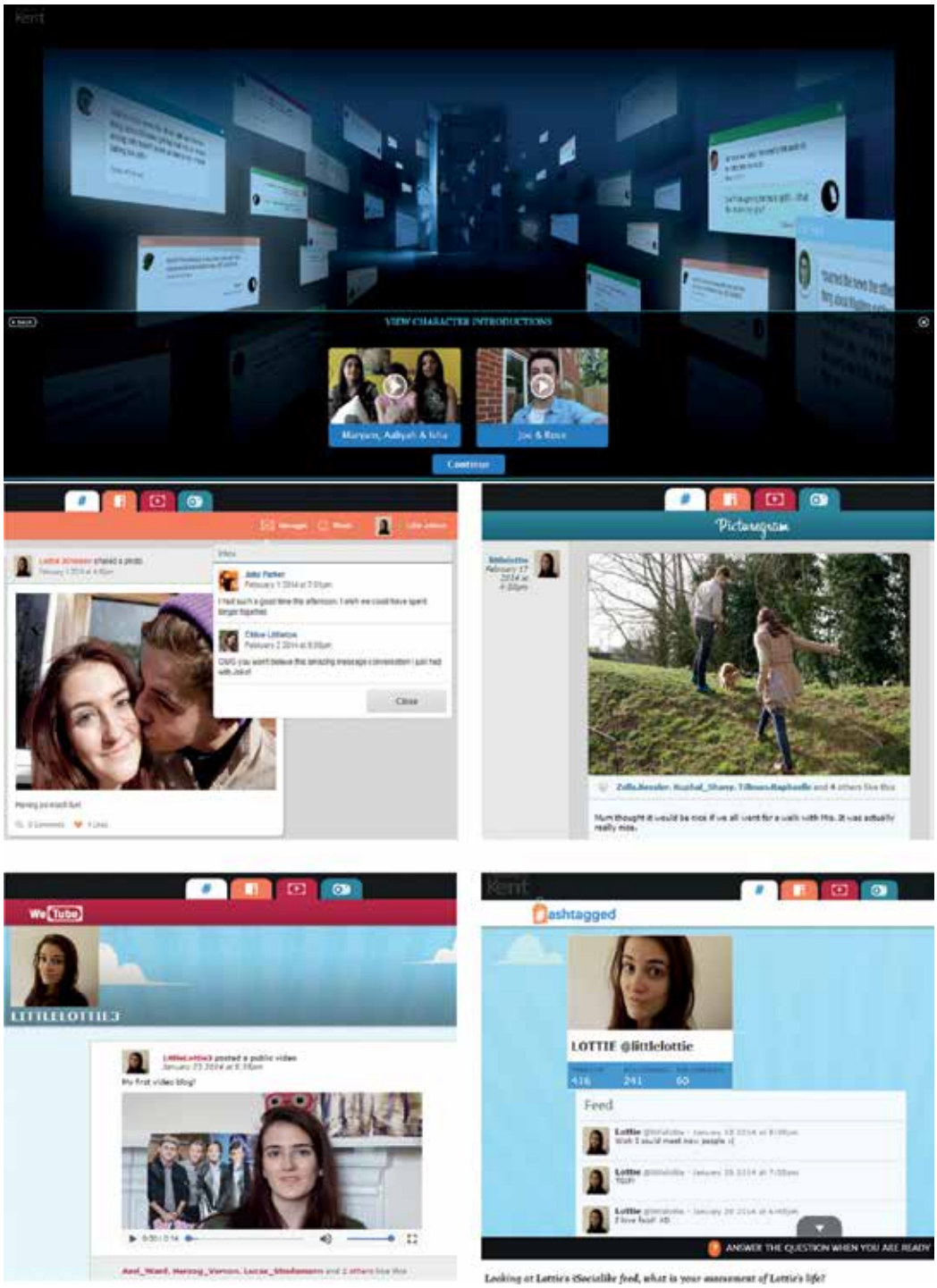

Figure 2. Screen shots 'Maryam and Joe – Behind Closed Doors' (top) and 'Looking out for Lottie' (bottom).

Learners have to solve a ***challenge*** ('who is the groomer' & 'why?')
It involves them in making **choices**, in '***forensic*' *analysis of evidence*** for example interrogating Lottie's phone conversations with the groomer, Jake, so learners can evaluate the different evidence before them and come to their own reasoned conclusions
They can see, weigh up & evaluate the different consequences of certain actions via various social media (which are familiar to them).
If young people work in small groups they observe and have the opportunity to learn from their peers critical evaluation skills
Radicalisation and CSE are ***structured*** as a topic; social media, however, is the ***scaffolding***. The issues and complexities are buried in the stories and narratives of the simulation and have to be found: thus developing critical evaluation skills
We have provided tools to ***activate*** thinking, ***interrogate*** evidence for themselves and see the ***consequences of different*** actions and behaviour

Table 5. How do we do this in our child protection simulations?.

react to this grooming. The social media format is the 'scaffolding' and engages the learner by making the way they receive information current and young person focused. Learners are 'forensically' searching for signs of grooming for radicalisation in a format that is familiar to them, therefore encouraging them to engage with the simulation subject matter. Clues are hidden in popular social media formats ('Wetube' 'Hashtagged' 'whatchat' 'snappit' etc.) (**Figure 2**) and young people have to evaluate this content to identify the groomers and evaluate the effects this has on the young people being groomed (**Table 5**).

6. Pilot research with young people on the effectiveness of 'behind closed doors'

Research [43] into the effectiveness of child protection simulations [12, 26, 34] has only just begun and is ongoing. However, by embedding teaching and learning techniques into a simulation which require young people to 'forensically' interrogate a story via 'scaffolding' in a format which they use in their everyday lives, namely social media platforms, appears to have encouraging results (**Table 5**).

In a small scale pilot of 'Behind Closed Doors' conducted in a College of Further Education, 39 students were divided into five sessions. After a brief introduction to the simulation, each student was asked to complete a consent form and then asked to 'play' scene 1 of the Maryam or Joe story. After playing the game, either in pairs or individually, each student filled in a feedback form of 13 questions rating the simulation, the story and the simulation features. The questionnaire elicited the following results: on the 1–10 rating scale, 85% of students rated the game as 'Good to Excellent' (39% males: 46% females) and 15% of student rated the game as 'Ok to Not useful' (0–6 on the rating scale) (7.5% male, 7.5% female).

While it is encouraging to have the simulation rated overall as good to excellent, what is noteworthy for future research is that 82% of students said that they had increased their knowledge about the topics of radicalization and grooming after playing the game. Additionally and of significance is that 61.5% of students said they would *change their online behaviour after playing the game*. Although this is only a very small scale pilot study, what these results give an insight into, and can be followed up in future studies, is that young people state that they are willing to change their online behaviour after going through an active process of learning whereby they have followed and interrogated the lives of young people who have been groomed and analysed how this happened. The features embedded in the simulation have allowed them to be active learners, constructing their own knowledge, being given a degree of control over how they learn and in what order, in a context which is meaningful to them and they have been given space and encouragement to reflect on a complex and difficult topic. Those students who said the simulation would not change their online behaviour often qualified this with a comment such as '*because I am careful anyway*' or '*because I already am safe online but this keeps me aware*'.

7. Conclusions

Research reviewed clearly states that grooming is a serious contemporary threat to global childhoods. The research reviewed has shown that there are young people who are particularly vulnerable to being groomed and that policy and the law has moved to try to protect them. However, recent serious cases reviews in the UK clearly show that on-line and face-to-face groomers have a sophisticated modus operandi for entrapping children and exploiting them sexually and for radicalization. Children need to understand what these techniques and approaches are so that they can protect themselves and each other and keep safe online. Parents need to have an ongoing dialogue with their children on online and face-to-face grooming and promote regular conversations between their children and with them, in order to understand online behaviour. Additionally, they need to know what approaches schools are adopting on the topics of grooming, CSE and radicalisation to teach their children to be critical thinkers on these issues in order to protect themselves and their friends. Schools need to share the resources they are using and clearly signpost parents to them to enhance their knowledge and understanding on these complex topics.

Existing research on simulations indicates that simulated environments offer a safe way for young people to evaluate situations and take risks safely. This chapter has reviewed innovative simulations currently being developed to help children and young people learn to protect themselves online in the form of simulations. These tools follow the lives of young people who are themselves groomed, giving young people the scaffolding through which to develop their evaluative skills in a way that is significant to them. A small scale pilot study has revealed that this approach to learning about grooming for child protection is encouraging and has the potential to change online behaviour.

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In contemporary understanding, the working areas of children's psychology are expanding considerably. The mental health of the children ensures that they are able to use their developmental abilities, cope with difficulties in life, be productive and be creative, and demonstrate cognitive, emotional, and behavioral characteristics appropriate to their developmental turn. This research was conducted to be able to identify behavioral disorders that may be a sign of children's mental problems and to shed light on the resolution of possible problems by facilitating the follow-up of psychosocial developments during the period of growth. This book presents an overview of the contemporary approaches in the departments of child education and psychology, with the hope of them growing up as happy, peaceful, balanced, thoughtful confident and successful individuals.

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