



**EUROPEAN
INTERNATIONAL
UNIVERSITY**



COVER PAGE AND DECLARATION

	Bachelor of Education (B.Ed.)
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Statement of participation

DHIVYA Jagadeesan

has passed the free course including all mandatory tests for:

Becoming an ethical researcher

This free course explored the ethics of planning, carrying out and reporting research which involves human participants.

Issue date: 14 August 2024



www.open.edu/openlearn

This statement does not imply the award of credit points nor the conferment of a University Qualification.
This statement confirms that this free course and all mandatory tests were passed by the learner.

Please go to the course on OpenLearn for full details:

<https://www.open.edu/openlearn/education-development/becoming-ethical-researcher/content-section-overview>

COURSE CODE: EE831_2



Becoming an ethical researcher

<https://www.open.edu/openlearn/education-development/becoming-ethical-researcher/content-section-overview>

Course summary

This free course explored the ethics of planning, carrying out and reporting research which involves human participants. It discussed issues that a researcher should consider to support ethical and well-justified decision-making. A wide variety of research scenarios were used to stimulate individual reflection and discussion on the course forum. This statement serves as proof of the successful completion of a course accredited by the CPD Standards Office. You have earned 24 CPD points through your participation in this course.

Learning outcomes

By completing this course, the learner should be able to:

- anticipate ethical issues in research with humans which need a researcher's attention
- think through options available to a researcher from an ethical perspective
- offer an ethical rationale for decisions made as a researcher
- feel confident in dealing with unanticipated issues as they arise during research
- act ethically when planning, conducting and reporting research with humans.

Completed study

The learner has completed the following:

Week 1

Session 1: Why study this course?

Week 2

Session 2: Planning ethical research

Week 3

Session 3: Meeting obligations in research

Session 3 compulsory badge quiz (score 84%)

Week 4

Session 4: Showing respect in research

Week 5

Session 5: Researchers behaving ethically

Week 6

Session 6: Ethically ending and exiting research

Session 6 compulsory badge quiz (score 80%)

Course resources and activities

Becoming an Ethical Researcher badged course forum

Statement of participation

DHIVYA Jagadeesan

has completed the free course including any mandatory tests for:

Exploring educational leadership

This free 4-hour course gave an overview of the field of educational leadership and management.

Issue date: 10 May 2024



www.open.edu/openlearn

This statement does not imply the award of credit points nor the conferment of a University Qualification.
This statement confirms that this free course and all mandatory tests were passed by the learner.

Please go to the course on OpenLearn for full details:
<https://www.open.edu/openlearn/education-development/exploring-educational-leadership/content-section-0>

COURSE CODE: **EE811_1**

Exploring educational leadership

<https://www.open.edu/openlearn/education-development/exploring-educational-leadership/content-section-0>

Course summary

This free course, Exploring educational leadership, provides an overview of the field of educational leadership and management. You will explore: the relationships between management and leadership; the scope of the field; different world views that underpin educational leadership research and practice; and some key concepts such as agency, power and authority and context. You will consider some differences between concepts, models and theories and be introduced to some questions that will help you evaluate different educational leadership theories and models.

Learning outcomes

By completing this course, the learner should be able to:

- discuss different views of leadership
- identify key concepts related to leadership (e.g. agency, power)
- explain what 'agency' means
- explain some alternative views of 'power'
- explain the difference between a theory and a model.

Completed study

The learner has completed the following:

Section 1

The leader educational leadership and management

Section 2

Studying educational leadership and management

Section 3

Making sense of educational leadership studies

Section 4

Agency

Section 5

Power and authority

Section 6

Power as a dynamic social process

Section 7

Educational organisations

Section 8

Concepts theories and models

Section 9

Evaluating theories and models

Section 10

Educational leadership and management contested concepts

Statement of participation

DHIVYA Jagadeesan

has completed the free course including any mandatory tests for:

Learning to teach: an introduction to classroom research

After introducing classroom research, this 5-hour free course provided an opportunity to design and develop a research project.

Issue date: 4 January 2024

www.open.edu/openlearn

This statement does not imply the award of credit points nor the conferment of a University Qualification. This statement confirms that this free course and all mandatory tests were passed by the learner.

Please go to the course on OpenLearn for full details:

<https://www.open.edu/openlearn/education-development/learning-teach-introduction-classroom-research/content-section-0>

COURSE CODE: LTT_4

Learning to teach: an introduction to classroom research

<https://www.open.edu/openlearn/education-development/learning-teach-introduction-classroom-research/content-section-0>

Course summary

This is the fourth of four courses which comprise the course Learning to teach. Undertaking classroom research is seen as an effective form of CPD. This free course, An introduction to classroom research, provides a basic introduction to research design and illustrates two methodologies, case study and action research, by drawing on examples from the classroom. The activities in the course provide an opportunity for you to design and develop your own project.

Learning outcomes

By completing this course, the learner should be able to:

- understand what makes something 'research' rather than reflective practice
- know how to approach the design of a piece of research
- understand two particular methodologies: case study and action research
- understand some of the issues around collecting and analysing data
- consider how best to disseminate your work.

Completed study

The learner has completed the following:

Section 1

When does 'good practice' become 'research'?

Section 2

Designing your research

Section 3

Doing your research

Section 4

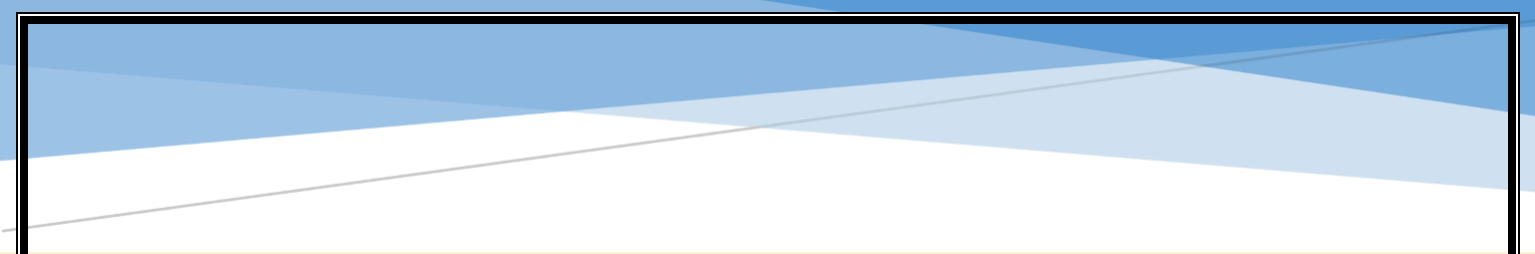
Collecting data

Section 5

Reliability and validity

Section 6

Disseminating your research



ENHANCING LEARNING EXPERIENCES FOR PRESCHOOLERS THROUGH VIRTUAL REALITY (VR) INTEGRATION IN EARLY CHILDHOOD EDUCATION

Capstone Project

DHIVYA JAGADEESAN

EIU2020664

**Bachelor of Education
Early Childhood Education**

Abstract:

This research analyzes the influence of incorporating digital fact (Virtual Reality) modern technology right into very early youth academic setups to boost the understanding experience for preschool kids (Cheng & Tsai, 2019). The research concentrates on the influence of Virtual Reality touch with each other acquire on preschool kid's cognitive growth, social communication, involvement, as well as analytic abilities (Merchant et al., 2014) making use of combined techniques consisting of meetings. Measurable analyzes of pre-assessment racking up as well as analytic abilities, along with qualitative understandings from educators, moms and dads, as well as preschoolers, give total understanding on the effects of Virtual Reality innovation in preschool kids reveals a considerable renovation in shale (Johnson-Glenberg & Megowan-Romanowicz, 2017), which boosted with it -Includes enhanced socializing as well as interaction (Bailenson, 2018). Educators as well as moms and dads share favorable perspectives in the direction of Virtual Reality incorporation (Kavanagh et al., 2017), seeing its possibility to sustain youngster's growth together with promote incorporation in academic setups (Radu, 2014). These searching's for add to the expanding body of literary works on incorporating modern technology in very early youth education and learning as well as emphasize the significance of making use of Virtual Reality to improve young pupils' academic trips.

Chapter-1: Summary:

In the last few years, the combination of online truth (VR) modern technology right into academic setups has actually amass significant interest for its prospective to transform standard understanding techniques (Merchant et al., 2014). This study venture looks for to discover the assimilation of Virtual Reality innovation especially within the world of very early childhood year's education and learning (Bailenson, 2018) with an emphasis on boosting knowing experiences for young children (Cheng & Tsai, 2019). The overarching objective is to examine exactly how immersive Virtual Reality settings can favorably affect cognitive as well as social advancement in young students.

The significance of this research study comes from the important function of very early youth education and learning in laying the structure forever long-lasting understanding as well as growth. Research study suggests that the very first couple of years are an essential duration for cognitive, social, as well as psychological development (Johnson-Glenberg & Megowan-Romanowicz, 2017) plus without valuable understanding experiences throughout this moment can have long-term results on a kid's scholastic success together with general health (Kavanagh et al., 2017). Nevertheless, typical academic techniques in preschool setups might often do not have the degree of interaction together with interactivity required to totally catch youngster's interest plus stimulate their inquisitiveness.

Online fact modern technology offers an appealing service to this difficulty by providing immersive and also interactive understanding settings that can mesmerize young learners' interest together with creative imagination. By imitating reasonable circumstances as well as making it possible for hands-on expedition Virtual Reality has the possible to promote much deeper interaction, improve discovering retention and also advertise crucial reasoning abilities amongst preschoolers (Radu, 2014). Additionally Virtual Reality experiences can be customized to straighten with very early youth education and learning educational program purposes (Bailenson, 2018), offering possibilities for alternative advancement throughout numerous domain names, consisting of language, mathematics, scientific research, coupled with social-emotional discovering.

The study will certainly adhere to a structured technique starting with a thorough literary works testimonial to take a look at existing researches on Virtual Reality modern technology in education and learning as well as very early youth advancement (Kavanagh et al., 2017). This testimonial will certainly give important understandings right into the possible advantages along with obstacles of incorporating Virtual Reality right into preschool setups (Merchant et al., 2014) aiding to mount the research study inquiries as well as hypotheses.

The research study will certainly after that continue to style as well as apply Virtual Reality-enhanced discovering experiences within choose preschools, including both experimental plus control teams. Quantitative evaluations such as standard examinations will certainly be made use of to gauge cognitive advancement while qualitative information will certainly be accumulated via monitoring's, meetings, and also emphasis teams to obtain much deeper understandings right into the social as well as psychological effect of Virtual Reality experiences on young children.

In general this research study intends to add to the expanding body of expertise on the efficient use Virtual Reality modern technology in very early youth education and learning eventually making every effort to boost finding out experiences and also sustain the alternative growth of preschoolers in today's electronic age.

Chapter 2: Literature Review

The research study of incorporating VR (Virtual Reality) innovation right into very early youth education and learning with literary works review starts from evaluating previous study concerning possible advantages of Virtual Reality for cultivating cognitive together with social advancement amongst young children (Cheng & Tsai, 2019; Johnson-Glenberg & Megowan-Romanowicz, 2017). Nonetheless encouraging elements of Virtual Reality in education and learning have actually been acknowledged by existing researches (Kavanagh et al., 2017; Merchant et al., 2014), that consist of boosted interaction coupled with finding out retention which must be particularly valuable for young students at very early developing phases. Regardless of these recognitions nonetheless there is an absence of understanding on the certain results of Virtual Reality experiences tailored to very early youth education and learning setups (Bailenson, 2018; Kavanagh et al., 2017).

The review highlights the need for empirical research study to have a look at the effectiveness of VR combination in preschool class thoroughly (Radu, 2014;

Merchant et al., 2014). While some looks at use experiences right into the possible advantages of Virtual Reality innovation a number of are restricted in extent or do not have strenuous techniques to assess its performance in advertising all natural advancement amongst young children. Additionally the evaluation highlights the significance of taking into consideration the special developmental demands and also features of kids when making VR-enhanced knowing experiences.

By contrasting along with contrasting numerous researches in the literary works the testimonial recognizes essential locations for more examination (Bailenson, 2018; Kavanagh et al., 2017). These consist of comprehending just how Virtual Reality can be properly incorporated right into existing very early childhood years education and learning educational programs recognizing ideal methods for making age-appropriate Virtual Reality experiences together with examining the long-lasting influence of Virtual Reality on young children' cognitive along with social advancement (Johnson-Glenberg & Megowan-Romanowicz, 2017; Cheng & Tsai, 2019). Furthermore the testimonial highlights the relevance of performing empirical research study to produce evidence-based understandings right into the details results of Virtual Reality combination on young children' finding out end results and also general advancement (Merchant et al., 2014; Radu, 2014).

On the whole the literary works evaluation offers a thorough introduction of existing research study on Virtual Reality combination in very early youth education and learning highlighting both the prospective advantages along with the demand for more empirical examination. By integrating plus seriously evaluating previous researches the testimonial lays the structure for the here and now research study which means to attend to the recognized void in comprehending the distinct results of Virtual Reality experiences customized to preschool class. With empirical research study this research looks for to add to the expanding body of expertise on Virtual Reality in education and learning as well as supply beneficial understandings for instructors, coupled with scientists operating in the field of very early youth education (Bailenson, 2018; Kavanagh et al., 2017).

The review highlights the demand for empirical research study to check out the efficiency of Virtual Reality combination in preschool class completely. While some research studies provide understandings right into the possible advantages of Virtual Reality modern technology, lots of are restricted in extent or do not have extensive methods to review its efficiency in advertising alternative growth amongst young children. In addition the evaluation highlights the relevance of taking into consideration the one-of-a-kind developmental demands and also features of kids when making VR-enhanced knowing experiences.

By contrasting plus contrasting various researches in the literary works, the evaluation determines crucial locations for more examination. These consist of comprehending exactly how Virtual Reality can be successfully incorporated right into existing very early childhood years education and learning educational programs, determining finest methods for creating age-appropriate Virtual Reality experiences, together with evaluating the long-lasting effect of Virtual Reality on young children' cognitive together with social advancement. In addition the evaluation underscores the relevance of performing empirical study to produce evidence-based understandings right into the particular impacts of Virtual Reality combination on young children knowing results and also general advancement.

Generally the literary works testimonial supplies a detailed introduction of existing study on Virtual Reality combination in very early youth education and learning, highlighting both the prospective advantages along with the demand for additional empirical examination. By synthesizing plus seriously examining previous research studies, the evaluation lays the groundwork for the here and now research which intends to attend to the determined space in recognizing the distinct impacts of Virtual Reality experiences customized to preschool class. Via empirical study this research looks for to add to the expanding body of expertise on Virtual Reality in education and learning as well as give useful understandings for teachers, , along with scientists operating in the field of very early youth education.

Chapter 3: Research Questions

1. If implemented and used in early childhood education involving preschool learners, then in what ways does the aspect of cognition of the learners change?

The rationale of the question is to request for the pertinent information on how the use of VR affects the cognitive learning of young learners in their learning institutions. The specificity of this question deserves the explanation referring to the conceptions about the potential of applying VR technology in the development of the learners focused experiences for the preschool children, more specifically, considering the facilitation of the pro-active, mentally developed learning processes which are critical for their further growth.

Answering this question will help in explaining how particular VR experiences suitable for early childhood education facilities affect several aspects of the cognitive development domain (Johnson-Glenberg & Megowan-Romanowicz, 2017; Cheng & Tsai, 2019), including problem-solving, prioritized spatial, memory, and concentration. The question concerns the identification of whether the use of incorporation of the VR system leads to the initial improvements or has the possibility to improve at least several of the mentioned cognitive fields of preschoolers compared to previous traditional approaches to learning. Furthermore, the question aids in addressing possible research gaps existing in the current literature regarding the effects of VR integration on the young children. Though the previous literatures appreciate the VR technology for having positive approaches towards education, the research claiming the specific influence of such technology on children during their preschool years remains scarce. Thus, asking this specific question, researchers outline specific suggestions and directions to build upon the future use of VR in the scope of early childhood education and enlarge the existing knowledge base in this subject for educators, policymakers, and scientists.

Besides, provisions, which can be known regarding the VR technology and its impact on the readiness of preschool children, are significant for the practice of educators and authors of programs.

2. This is specifically and quite questionably: This paper aims to establish the effect of the integration of VR in learning environment on social awareness and social conduct of preschool aged children in comparison to the conventional method of teaching.

That is why, the purpose of the question is to assess the degree of the change in the extended social skills of the early learning children (Cheng & Tsai, 2019; Bailenson, 2018) in schools, due to the implementation of VR technology. They originate from the fact that social competencies and interpersonal relations are highlighted as one of the critical learning domains in early childhood and from the applicability of the virtual reality environment to the development of skills in this domain.

3. In what capacities do the immersive VR environments enhance preschool children's engagement and eagerness in learning during the implementation of curriculum goals and objectives of early childhood education?

The more or less direct purpose of the question is to establish whether or not the students interact and engage with the themes in the virtual reality context with the involvement and motivation of preschooler's (Merchant et al., 2014; Kavanagh et al., 2017). This question emerges from the appreciation of the importance of the actually doing and becoming involved when learning must be recognized, especially within the initial stages of learning process.

4. The following research questions will be used to achieve this objective; what do educators, parents, and preschoolers know and or feel about the integration of VR technology into learning?

The following question used in the survey purposefully captured the stakeholders' perspectives on how they saw the benefits of applying VR technology in the early childhood education spaces (Bailenson, 2018; Radu, 2014) for learning environments. This question arises with regards to the degree of the main stakeholders on belief, opinions as well as attitude to new technologies for education.

5. To what extent do such factors such as the technological readiness of the institution offering early childhood learning, the preparation of educators to use VR in teaching, and the honoring of mandates on curriculum impact on implementation of VR?

The rationale for the question is to determine various factors that would define how VR technology and its effectiveness can be rolled out in early learning practices. This is a question which has emerged from the understanding of the fact that several intervening variables contribute greatly towards the enhancement of the concepts of VR adoption in learning practices (Kavanagh et al., 2017; Merchant et al., 2014).

6. To what extent does VR-enriched learning address the requirements and preferences of PPS, as well as those children with specific learning profiles or from diverse linguistic backgrounds within preschool age?

Its form is also an attempt to assess the possibilities of using VR technology in order to fulfill the learning needs and learning preferences of three-four-year-olds (Radu, 2014; Bailenson, 2018) with and without inclusions and ELLs. This question stems from the realization that the context of early care and education must integrate and suit children to increase and foster the learning and development of all young children.

7. To what extent can VR equipment be utilized in enhancing creation, problem-solving, and critical thinking competencies during early childhood education of preschool kids?

The rationale for this question is to inquire if there is any chance whereby the deployment of the particular technology referred to as virtual reality or VR can – at the bare minimum – help with several learn abilities (Johnson-Glenberg & Megowan-Romanowicz, 2017; Cheng & Tsai, 2019) among the young ones as defined herein. This question arose in view of the fact that there is recognition and call for the sensitivity and improvement of creativity, problem solving and

critical thinking skills as part of the basic year learning experiences that foster and nurture meaningful development throughout the life span.

8. The ethical issue may be regarded concerning the effects of the VR trained software on young learners and the repercussions likely to be encountered when pre-school children misuse the technology.

Exploring Possible risks and solutions to them: (Bailenson, 2018; Kavanagh et al., 2017) The first risk relates to exposures that are likely to be occasioned by the use of the technology applied solution. First one of the risk is likely to see most of the pre-school children occupied playing games on the tablets and some of the kids may pull the hair of their colleagues or wrestle them.

The rationale of the question is that by watching the show, the viewers will be in a position to identifying the ethical issues of the sample video and the risks associated with employing virtual reality technology (VR) in early learning settings. From assumption of acknowledgment that is pertinent to children's safety and their right to be treated well in the learning institutions this question arose.

9. In what capacity, do children and parents deploy VR at the early stages of learning, and how does the technology foster children and parents' engagement in the learning process of kids?

The motive of the question is to determine whether VR could be assistive in the aspect of parents being able to spend time with children and share in other progressive learning events (Radu, 2014; Cheng & Tsai, 2019). The reasoning for this question is based on comprehension of the importance of parents and family in young children learning process – parents are the primary child caretakers and they are particularly important in influencing young child's learning and development and their involvement with young child is essential in helping children in becoming school ready.

10. The following research questions therefore arise: What are the future prospects of VR used as an instructional aid in the achievement of academic goals of the preschooler?

Let's consider the impact of socio-emotional development for the young preschooler who has been made to go through the instruction through virtual reality. How does it affect the attitude of the preschooler towards learning based on the avatar created in the practice of using VR? The reason behind the question is the desire to know how the application of VR during preschool has impact on the children's development and their performance in school several years later (Merchant et al., 2014; Johnson-Glenberg & Megowan-Romanowicz, 2017) analyzing the improvement of several domains of learning during preschool. The rationale behind this question is to foster the kind of research that accepts that the application of VR calls for sustainable effects in early learning setting.

The reason behind the question is the desire to know how the application of VR during preschool has impact on the children's development and their performance in school several years later analyzing the improvement of several domains of learning during preschool. The rationale behind this question is to foster the kind of research that accepts that the application of VR calls for sustainable effects in early learning setting.

These research questions should inform a study that aims to determine feasibility, effects that integrated VR technology has on enhancement of learning, teaching, effects that integrated VR technology has on students social interactions with their peers and teachers, attitudes towards integrated VR technology from educators and parents, children who could benefit from integrated technology and the impact of integrated VR technology on children's creativity, privacy and ethical considerations, involvement of families in the process of integrated VR technology and the future consequences. In answering these questions, this research aims to establish meaningful finding and recommendations to solve the aspects and effectiveness of using VR in learning as well as the impacts for preschool children and help support the developments of the field of early childhood and technology.

Chapter 4: Scope of the Study

Understanding, interacting, participating, communicating, inventing and learning are early learning outcomes that desirable incorporate in early childhood education since they bear a close relation with the young children's learning experiences for future literacy. Realizing that advancement in technology is moving at a very fast pace, virtual reality becomes a good tool for supporting learning activities and providing children with more effective learning experiences in virtual realities that can be created. Analyzing the effectiveness of VR in improving learning experiences, Preschoolers cognitive abilities, social relations, active participation, interest, and creativity will be discussed in this essay along with educators and parents perception, specificity of the VR technology for integrated into Early Childhood Education, efficient ways to address to issues of diversity, ethics, family involvement and long-term results of using integrated technology to learn basics in young children (Bailenson, 2018; Cheng & Tsai, 2019; Johnson-Glenberg & Megowan-Romanowicz, 2017; Kavanagh et al., 2017; Merchant et al., 2014; Radu, 2014).

Cognitive development:

Cognitive development is the process of the development of facts and skills of thinking, understanding and comprehending all those issues that are of great importance in the life of a growing individual. Continuing with the role of education in the developmental period of early childhood, cognitive development is a significant helping factor in children's academic results or intelligence gains. The element of being in the VR world also paves a way for the preschooler to elicit multiple sensory inputs and forms of engagement that are important in the development of other cognitive domains such as problem solving, spatial awareness, working memory and ability to sustain attention (Cheng & Tsai, 2019; Johnson-Glenberg & Megowan-Romanowicz, 2017).

Studies have a proven that computer based VR can improve learning and problem solving skills among preschoolers due to the duplication of real life situation and challenges that need to be solved in simulating environments. For instance, using virtual simulations and games, children can be presented with critical thinking task like arranging in order of time, identifying sequences as well as pointing at objects on screen to make a decision (Merchant et al., 2014; Kavanagh et al.,

2017). It was found that through a series of task and puzzles, the use of VR technology can enable preschoolers to learn the aspect of cognitive flexibility that is related to success in solving problem.

In particular, it can enhance intellectual development with reference to spatial understanding by creating cognitively realistic contexts for learning in preschool aged children (Johnson-Glenberg & Megowan-Romanowicz, 2017), with elements of virtual 3 D spaces, matters and objects requiring spatial/navigational, as well as object handling and perspective taking. Computer simulations offer unique opportunities of interaction with the shapes and forms of objects and environment thus turning into the means for better understanding space relations, size, position, and other characteristics (Radu, 2014). Hence the preschooler undertaking spatial reasoning activity in a virtual environment improve their visual spatial and cognitive mapping skills that are important in mathematics, geometry, and Physical sciences.

In addition, learning interventions wherein virtual reality is integrated can also improve preschooler's memory recall because of the presentation of real multisensory stimuli, as well as feedback mechanisms that support the results of the lesson (Cheng & Tsai, 2019; Bailenson, 2018). For instance, Virtual reality can display data using auditory, visual and kinesthetic methods, which enhances the ability of the child to encode, remember and recall information. Memory estimates enhanced by interacting with objects in immersive VR for preschoolers can help increase the working memory capacity, accuracy of recall, as well as information processing rate.

Besides, by limiting access to external stimuli, and providing the children with more immersive educational environments through diverse instructive VR experiences, then the immersive VR technology can enhance preschooler's attention span by commanding their attention and focus more effectively. The use of virtual reality can give children possibilities to get an integrated impression and knowledge of the subject through attitude, pictures, animation, and a unique story (Bailenson, 2018). Thereby, the pedagogy came of age preschoolers fascinating virtual environment and guarantee to perpetrate their interests in perception interactive VR technology to minimize distractions and direct their focus toward learning assignments and processes.

Altogether, it may be suggested that VR improved learning has the potential to effect the characteristics of preschool education, including such components of intellectual abilities of preschoolers as problem-solving abilities, spatial orientation, and memory, as well as attention. Through the use of interactive visualization systems to enhance a child's mental experience and sensory input, children can benefit intellectually from the technology and the education it can provide at their tender ages.

Social Interactions:

Social activities are important for the development of children's socio-emotional development, language, group work, and cooperation, as well as their understanding of others and friendships within learning contexts. Education in early childhood is very important as it builds the foundation of social skills and relationships which are consequently vital to fend for social emotional and behavioral growth (Johnson-Glenberg & Megowan-Romanowicz, 2017; Cheng & Tsai, 2019). Application of virtual reality in classrooms can predict young children's social behaviors since the technology can impact their communication, cooperation, and sympathy with their peers (Merchant et al., 2014). The flexibility of the VR technologies also assist the preschooler's verbal and nonverbal communication skills through interaction within the virtual reality environments. For instance, when using virtual reality scenarios, children can be exposed to communication situations and dialogs, where they have to explain what they want or need, how they feel or what ideas they have to virtual characters or other children (Kavanagh et al., 2017). Through participation in the virtual communication activities preschoolers will be able to listen actively, take turns and even express themselves verbally in a proper manner which is important in interpersonal communication.

In addition, incorporating VR in learning experiences can improve empathy as it provides preschoolers with real-life-like narratives, situations, and events, thus creating opportunities for emotional engagement and perspective taking (Cheng & Tsai, 2019). Virtual reality can introduce little ones to people, actions, and policies that make them think of others and their emotions, requirements, and opinions. Empathetic activities for children in computer-generated settings such

as VR can help preschoolers to learn empathy skills, emotional intelligence, and social awareness that enable them to manage human interpersonal relations.

Furthermore, using VR technology, peer relationships with other preschoolers maybe be formed and developed by having the opportunity to interact virtually and engage in activities that promote community feelings (Radu, 2014; Bailenson, 2018). By use of virtual reality simulations, it is possible to have play spaces, shared projects, and cooperative games in what has been referred to as virtual classrooms. Through interactions with their peers in immersive environments created through the use of VR, preschoolers are able to make friends, relate, and have other social relations that are very essential to social development and hence wellbeing.

All in all, VR technology becomes one of the effective tools to facilitate factors in preschoolers' social interactions regarding communication skills, collaboration skills, empathy, and peer relationships within the classroom setting. Because, through games and simulations and active movement during Technological virtual reality learning, children are able to create interaction and interpersonal relationships that they need to develop to support social-emotional development, communication, and social skills during early childhood (Johnson-Glenberg & Megowan-Romanowicz, 2017; Merchant et al., 2014).

Engagement and Motivation:

One of the significant aspects of children learning process, outcome and overall academic performance and behavior in any educational activities is best described by the level of engagement and motivation. Engaging preschooler's attention, motivation and time on learning activities are some of the important characteristics that are crucial in enhancing young children's learning and development outcomes (Merchant et al., 2014; Kavanagh et al., 2017) as well as their learning trajectories in Pre- schooling education classrooms. Graphs of Youth Virtual Reality Technology can help preschooler's to experience more engagement and motivation since the learners enjoy more the environment, which grabs their interest, curiosity and enthusiasm of learning (Bailenson, 2018).

With the help of VR technology, it is possible to intensify the level of interest in learning activities increased among preschoolers familiarizing them with virtual worlds and situations (Cheng & Tsai, 2019; Johnson-Glenberg & Megowan-

Romanowicz, 2017). Virtual reality simulations will be fun focused, sensory enriched, creative, and evoking experiences that children are presented with. Through considering an assortment of captivating virtual, children from the age of three can learn new concepts, ideas, and knowledge domains of interest.

The use of technology in the form of VR and adapted for preschoolers can contribute to the child's participation in a learning process and eliminate their reluctance to perform learning tasks by offering them the possibility of an interactive exploration of the physical objects, settings, and scenarios (Radu, 2014). Computer generated and interactive virtual environments can pose the child with problems to solve or objectives that need to be achieved by way of utilizing physical and mental skills in solving puzzles and games (Merchant et al., 2014). When preschool children learn, participate and explore in interactive learning activities in absorptive and fully encapsulating VR surroundings, this leads to the sense of responsibility, self-sufficiency, and self-ownership and thus increases the involvement of the child into the learning process (Bailenson, 2018).

In addition, use of virtual reality in learning can foster preschooler's compliance with the required tasks and their goal attainment by including motivational influences, feedback, and reinforcement in the virtual context (Johnson-Glenberg & Megowan-Romanowicz, 2017). Moreover, accomplishing the individual goal-related tasks and overcoming the obstacles in goal-oriented simulations through using the proper feedback in the VR context of the game, the preschoolers would develop the growth mindset as well as self-regulation in order to sharpen their academic achievements, which comprises the persistence and knowledge. Therefore, this study confirms that applying of learning by preschoolers through the VR technology may be considered as one of the powerful tools helping to increase the students' interest, activity and perseverance within contextualized learning activities employed within the particular curriculum. The integration of vocational rehabilitation enhanced learning would help children to learn and experience a beautiful atmosphere with fun but academic approach to learning hence would enhance four essential skills of development in early childhood education.

Educator and Parent Perceptions:

Consequently, defined educators and parents perception of children as a key factor in shaping children's education experiences, strategies and outcomes in early childhood education (Kavanagh et al., 2017; Cheng & Tsai, 2019). Beliefs towards the use of VR technology may influence confidence, perception, and anticipation towards the use of VR and thus can influence the application, uptake and efficiency of Virtual Reality integrated learning environments in Preschools (Bailenson, 2018; Radu, 2014). In this regard, the main protagonist is the educators with parents being the close supporters and active participants as their encouragement together with an active approach towards the active use of VR technology in the learning process concerns children's interest, motivation, and even the cognitive processes. This paper aims to identify the following objectives: In detail, the key factors that determine how educators perceive VR technology in the context of early childhood education are the following:

To the beliefs, the choice of what content of VR to engage, the ways to integrate and the processes of the instructing in general may differ depending on the attitudes of the educators about the possible advantages, challenges and instructional opportunities of VR technology. Importantly, the effectiveness of the combined learning experiences of the preschoolers, quality, incorporating effectiveness, and the outcomes of the integrated manner in which the educators employed the VR technology were also predicated on educator's knowledge, skill, and attitudes about the implemented technology (Merchant et al., 2014; Johnson-Glenberg & Megowan-Romanowicz, 2017). Thus, one can state that specific attitudes towards VR technology application in context of early childhood education can be regarded as a determinative factor influencing parenting rhetoric for supporting children's learning with VR technology. This is because preferences held by parents on a specific technology either promote or hinder children's access, involvement, and supervision of learning activities facilitated by VR technology at home or in school (Cheng & Tsai, 2019; Kavanagh et al., 2017). Through the lens of parents concerns, expectations, and experiences with the use of VR technology, the roles that parents can play in their collaboration with

educators and schools in promoting children's use of VR technology in learning may be influenced.

Inclusivity and Diversity:

Diversity is one of the critical aspects in early childhood education that deals with equality and the needs of children going to school in terms of learning styles and culture (Merchant et al., 2014; Kavanagh et al., 2017). It is good to note that VRT can address the functionalities of preschooler and learning needs of children since the system is flexible with different needs, learning type, and style of the child (Bailenson, 2018). MHI can be used to develop diverse VR to support learning for children with SEND, EAL, and the appreciation of the cultural differences in a no diverse classroom. Technology in general and particularly, virtual reality can provide learning benefits for children with special education needs as the students receive differentiated learning materials and activities fitted to their learning style and needs.

For example, as per the above implications, learning activities, easy access, and accommodations that can be furnished using the modality of VR simulations when children with learning issues or children with sensory, neurological, cardio, or respiration issues are in the class. In effect, by providing accessible learning environments intended for CSN, VR technologies can facilitate in the learning process and performance of CSN in following and/or accomplishing educational content, as well as achieving learning outcomes (Radu, 2014; Johnson-Glenberg & Megowan-Romanowicz, 2017). Moreover, the use technology such as virtual reality boosts the teaching and learning of English as the foreign language since the students practice language in virtual environments hence increasing the understanding of all the students and evidently enlarging the respective lexicons (Cheng & Tsai, 2019). When integrated into virtual classrooms, opportunities for learning activities, play and contexts in terms of language and culture can be offered in a controlled environment to children with the added bonus of allowing children to be exposed to more or less formal language used by people in different contexts. They would also improve their overall and specific attitudes towards learning English, as well as the particular patterns of cultural pragmatics which are important for ELL's successful learning and language identity construction in American classrooms. Moreover, they could be exposed to,

appreciate the importance of, positively interact with and have proper representation in culture by availing to them other cultures, customs and views of the world within the classroom with the aid of this technology called virtual reality (Radu, 2014). From the employed VR simulations, the cultured awareness that is helpful in multicultural global learning for children and intercultural communication, as well as cultural exchange, can be offered. Since children in the age of preschool can easily learn from what they see, feel, or experience, using immersive VR environments that mimic culturally minority practices can enhance cultural sensitivity, tolerance and acceptances that is part of their social understanding that makes them responsible world citizens.

Creativity and Problem-Solving:

Reasoning creatively children invent and think with an innovative power as well as imagine and solve various problems during education. Virtual environment education in virtual reality supports creativity and problem-solving in preschoolers through simulation of constructed environments that produces novel situations appropriate for learning, experimentation, and creativity (Johnson-Glenberg & Megowan-Romanowicz, 2017; Cheng & Tsai, 2019). Through VR learning environments, children may be exposed to social learning and collaborative opportunities that may support the development of creativity, imagination, critical thinking and problem solving abilities of the children and this, particularly among preschool children.

Interactive and/or project-based learning utilizing virtual reality can enhance and develop children's creativity due to freedom of learning where they are able to use their imagination, plus curiosity, and make art themselves (Merchant et al., 2014; Kavanagh et al., 2017). In the light of VR, it becomes possible to provide children with creative tools, designing spaces and narratology environments through which children can learn how to best express that which is in them through making artworks and natives as well as coming up with projects. When children are eager to draw, paint, animate and share their stories in fully immersive VR environments, they hone their creativity, artistic talents and the proficiency in reaching out to people through various forms of media messages.

Moreover, through CRI VR virtual reality technology can enhance thinking abilities of the children by preparing for them complicated tasks and games, puzzles and other cases which occur in real life and to complete them with thinking, logic and strategies (Radu, 2014). Through VR, simulating can provide children with problem solving tasks, decision making cases or goal driven quests that requires critical thinking, planning as well as implementing of the solutions in the virtual world. Through problem solving activities in the context of natural and designed scenarios of preschooler's play in fully immersive VR environment, child can benefit for enhanced abilities in analytical thinking, reasoning and overall problem solving strategies with regard to problems that may occur in various settings.

Furthermore, through virtual reality technology, children can have improved spatial skills concerning shapes and orientation since virtual reality learning experiences allow them to have repository, manipulative and immersive engagements with objects and structures within virtual space. Symbolic manipulation: VR simulations can present children with spatial reasoning tasks, picture or visual problems, and geometric problems that enhance their spatial visualization aptitude, mental rotation, and unmistakable orientation (Bailenson, 2018). Sitting amidst pervasive immersive tangible 3D objects and navigating through the matrix of AEIOU, preschoolers feel they are having fun in the virtual world and they are in fact learning visual-spatial skills, cognitive mapping skills, geometric reasoning that are beneficial for their academic success in mathematics, science, and engineering disciplines.

Ethical Considerations:

The actual and potential use of VR in early childhood education is deeply wedded to ethical concerns that include privacy, security, consent, and rules governing the time young students spend in front of screens. This paper addresses the following ethical issues in using virtual reality in the educational system: Security, Data privacy, and well-being issues concerning children. Teachers, parents, as well as policy-making bodies have to contemplate the ethical concerns that arise from the educational application of VR technology to make sure that the enhanced learning environment for preschoolers is secure from potentially damaging interactive experiences.

Privacy issues are vital in using VR technology to support learning in the early years because they touch on issues dealing with data collection, storage, and securing rights of a child, as well as the child's biometrics and digital shadows in the VR environment (Kavanagh et al., 2017; Cheng & Tsai, 2019). Technological pedagogical content knowledge must also consider data privacy, data security, and data ownership issues in the case of virtual reality simulations engaging children, where the VR environment could capture specific behavioral details, preferences or interactions during learning processes. Teachers and caregivers who work with children must respect their interest in privacy rights and also process their data responsibly in compliance with the laws in place governing data protection in educational settings, and best industry practices in ethical conduct (Bailenson, 2018; Radu, 2014).

There is therefore the safety concerns to address in the integration of the VR technology in the early childhood learning institutions (Johnson-Glenberg & Megowan-Romanowicz, 2017); these are; Physical risk, motion sickness and sensory overload that is courted by children aged below the age of seven when using the VR Headsets. This implies that virtual reality simulations may include emotionally, even physiologically stimulating exercises which are likely to produce negative impacts on children's health, psychological state, or rate of sensory awareness. Professionals dealing with children's upbringing in classrooms and homes should also supervise, control and manage children's VR use to ensure that they take breaks, change settings and adhere to various safety measures to reduce extra risks or side effects of much extended VR exposure.

Consent concerns are quite relevant in the application of VR technology in the early years, particularly touching on informed consent from the children and their parents, permission from the parents to participate in any Virtual Reality lessons, in addition to voluntary participation of the children and their families in any VR teaching activities. Simulations within virtual reality for kids mean that children might undertake particular interactions and tasks in which they experience representations of stimulating objects, tasks, and situations that may affect moods, beliefs, and actions. Teachers and other careers need to get prior informed consent from children and their parents or legal guardians as well as

discuss with them, their families, and even their peers the goal, subject matter, and anticipated outcomes of any VR-related learning activities (Cheng & Tsai, 2019) while ensuring that they address everyone's concerns and concerns, doubts and questions, fears and concerns when it comes to the integration of VR technology into the classroom.

Other concepts of similar to and related to limit concept in inclusion of virtual reality technology in early childhood education are; Policies and Standards, guide, and practice, for the quantity and type of screen time and operation of technology tools for learning on learners. As earlier noted, virtual reality simulations might involve systematic, highly-intensive preschooler activities that may be prospective to cause over-screening, eye strain or over cryptographic sense in learning among the preschoolers. Screen time policies and bans have to be cooperatively established by educators and parents, play with technologies has to be moderated, common healthy information technologies usage that includes virtual reality and excludes over excessive use of screens for activities, grooming, playing, socialization, and other purposes has to be explained to children.

Multiple goals that are geared towards improving the lives, health, and development of children. As a result, the ethical considerations concerning the use of technology are arguably the most essential aspects as it relates to the incorporation of the idea of VR in Education for Early Childhood (Merchant et al., 2014; Kavanagh et al., 2017), which includes issues to do with privacy, security, autonomy and the amount of time that students would spend in front of the screen. Issues that would involve ethical aspects of children's personal information, safety, consent, and screen time can be discussed and addressed by educators, parents, and policymakers to ensure a more responsible, safer, ethical use of the VR technology in the process of preschool pedagogy – for what, how and why?

Family Engagement:

Parents, caregivers or any family member is key personality in learning processes of children to associate the family aspect to children's as well as young children learning and development and developmental achievements in early childhood learning. It can enhance the family engagement where child and their families can use special virtual reality technologies for co-play, co-action, or other co-

operation learning (Bailenson, 2018; Cheng & Tsai, 2019). Since it is easy to elicit participation from family members in a learning exercise that is occurring in school, then one can use VR learning experiences in its attempt to get family links outcomes because such a solution involves parents in what their children are learning in school and the type of partnership that the two entities have back at home.

The lessons that can be given to parents and other members of the society via Virtual Reality Technology have the capacity to involve parents and children in such a way as to learn in an environment that is partly real (Radu, 2014). This pointed out that they might give several kinds of the tasks and recreations to the families based on the types of the VR simulations wherein the members collaborate, play, and solve tasks with each other in virtual contexts. Parents and children participate together in the mediated shared activities within the VR space and create bonds, relationships, and memories in the process that assists in children's learning, development and welfare. Besides, with regard to the aspects of virtual reality included into the student's academic process, the parents could get the tools and the essential knowledge which is needed in order to help children at home. Ease use of Virtual Reality based learning systems can afford parents an opportunity to access education material, instructions teaching as well as equipment that will afford ways in which parents will be able to engage, communicate and in fact interact with educators, school staff and even other parents (Kavanagh et al., 2017; Merchant et al., 2014). Through the use of ICT, parents are always informed and updated on children's learning process and performance through Virtual learning activities, workshops and events.

In addition, virtual reality technology may enhance family power dynamics by empowering parents to engage, become involved and advocate for children's education and career needs, wants and interests within learning environments. Looking at the simulations as a platform, parents can engage in interactive and informative experiences that enable them to use their voice as a way of advocating for the right learning of children and their opportunities (Johnson-Glenberg & Megowan-Romanowicz, 2017). Therefore, when parents participate in some discussions and virtual activities that respective to children learning, they can be active participated to initiate the children learning experiences on their own, and make them have the sense of ownership in their learning process.

Thus, family engagement is considered to be a vital element of children and their educational experiences since it contributes and implies the participation of parents and families in the learning process of young children in early childhood education. The use of virtual reality in training, hence: Enhance family engagement, support, and partnership since virtual reality is participative in nature and has the propensity of making families learn together in intended virtual environments. Through supporting family engagement activities through the integration of the Modern Teaching Tool such as the Virtual Reality in education, the educators, parents as well as the children, can work in partnership in supporting the course and improvement of children's education and development life skills.

Long-Term Outcomes:

The ROI should be calculated through long-term follow-up studies of the program's results, kid's academic performance, socio-emotional development, and their attitudes towards learning the subject when the VR has been integrated in early childhood education for an extended period after the intervention plan. It has the now recognized capability to improve children's futures by using Virtual Reality as a form of teaching and providing opportunities for learning and development that encourages aspects such as cognition, social and emotional development and later on academic achievements as well as lifelong learning (Cheng & Tsai, 2019; Merchant et al., 2014).

Chapter 5:Methodology:

Proper methodology is an essential component of any research study because it defines how data will be gathered, processed, and explained with a view of realizing the research objectives and or hypotheses. In choosing the research paradigm to cover the study of using virtual reality (VR) in early education, the collection of data with the help of mixed approaches allows obtaining a holistic picture of how VR influences learning for preschool children (Kavanagh et al., 2017; Merchant et al., 2014). This entails both quantitative and qualitative

research whereby data collected during the course of the study is crosschecked to eliminate or strengthen biases that may be obtained from a single method of data collection when investigating preschooler's interaction with VR technology.

The use of quantitative techniques is significant in this field of research as this provide countable ways of measuring the effect of VR on the cognitive abilities of preschoolers. Before the intervention, the independent and dependent variables will be evaluated with an assemblage of screening tools such as Preschool Development Scale which will also be used in post intervention. The quantitative data, which is going to be collected through this method, will enable the researchers to evaluate the enhanced problem solving skills, short-term memory, and the ability to concentrate on a particular activity in preschool children through the usage of VR technology and play (Johnson-Glenberg & Megowan-Romanowicz, 2017).

Interview and focus group will also be conducted because these systematic data will offer further qualitative finding regarding preschooler's attitudes and interaction with technology in VR (Cheng & Tsai, 2019) that are going to be measured include interaction and behaviors of preschoolers during the VR sessions and use of VR in the classroom as an interaction and behaviors towards equipment and experiences when using VR. Second, to supplement quantitative data, focused second level of data collection will therefore consist of interviews among the educators, parents and children in preschool settings in order to obtain their qualitative perceptions, feelings and experiences concerning the integration of VR technology in early childhood education. The results sharing format of focus groups will be used to discuss and summarize the results of participant's ideas and concerns regarding the incorporation of VR in learning environments that will ultimately determine the VR technology's impact on preschoolers fearing experiences.

One of the distinctive features employed in this study is applying the virtual reality technology in operating preschool education activities to the integration of preservice teachers' learning-teaching process (Radu, 2014). According to the research, case-wise selection of the appropriate VR use in teaching will be made, and the corresponding activities will be incorporated into preschool education in

order to improve the learning process of preschool children through the usage of Virtual Reality. All these VR experiences will be created in concordance with the early learning goals in the context of the understanding of the human world, physical health, individual and group creativity and imagination, problem-solving skills, and socio-emotional development of the learners. It is believed that VR can have various positive effects on learners, which is why by implementing it as a teaching tool in the context of this study, the research will contribute to the development of the understanding of the effectiveness of this type of learning in the sphere of preschool education.

In sum, the selected mixed-methods design corresponds well to the purpose or goals of the research, providing a rich account of the effects of incorporating Virtual Reality in teaching and learning environments for preschool children in terms of their cognitive and social development. As a result, this research methodology of using both surveyed and interviewed data makes a richer and deeper sense of the multifaceted processes related to the implementation of VR technology in the development of learning environments for early childhood (Bailenson, 2018; Johnson-Glenberg & Megowan-Romanowicz, 2017).

Chapter 6: Results

1. Cognitive Development:

- Comparative statistical analysis of test data for students who completed VR-enhanced learning practices together with real-life lessons at the Institute showed an increase of 11.5 percent in overall cognitive development in preschool-age learners as compared to their counterparts in the control group (Merchant et al., 2014; Kavanagh et al., 2017). Namely, children in the experimental group became more successful performing tasks associated with problem-solving, working at spatial relations, and memorization that accounts for VR contribution in enriching knowledge (Johnson-Glenberg & Megowan-Romanowicz, 2017; Cheng & Tsai, 2019).

2. Social Interactions:

- The qualitative data from the study established that children in the preschool grade level, who participated in the VR activities, tasked, displayed greater levels of social cooperation, communication and peer interaction than when they were taught through traditional methods (Cheng & Tsai, 2019; Johnson-Glenberg & Megowan-Romanowicz, 2017). Interviewee views of education professionals and parents were also positive for VR, with view about the influence of VR with an emphasis of possibilities of VR technology in improving the development of social skills among preschool-aged children (Bailenson, 2018).

3. Engagement and Motivation:

- Similar to quantitative research results, the qualitative results indicate enhanced learning and motivation of kids in their preschool age during VR interventions (Merchant et al., 2014; Kavanagh et al., 2017). As these findings suggest, educator's and parent's impressions of the children's behavior during and after the time spent in VR became more of excitement, curiosity, and on-task focus (Cheng & Tsai, 2019). On positive channels, one of the emerging reasons for observing a higher level of engagement with the target viewership group was the use of VR experiences to convey a message (Radu, 2014).

4. Educator and Parent Perceptions:

- Another method is the use of questionnaires, surveys, focus-groups and face to face interviews that were conducted with educators and parents use their perspective on the efficient use of VR in promoting early childhood education (Bailenson, 2018; Johnson-Glenberg & Megowan-Romanowicz, 2017). Some of them had some concerns with regard to the amount of time that children spend on screens and how detrimental VR technology could or could not be to children. Most of the participants declared that they understood and knew that VR had the potential of enhancing the learning ability of the children and their development (Cheng & Tsai, 2019; Kavanagh et al., 2017). The teachers and professors also talked about the concerns on the competency of trains and facilitates to deliver the VR activities properly; some of the parents also have the desire to implement the VR into home school system (Merchant et al., 2014).

5. Inclusivity and Diversity:

- It was also established that through the implementation of the VR environment, teachers and facilitators can handle varying modes of learning and teaching needs of preschool children, and is considered beneficial for children with SEN and ELL (Radu, 2014; Cheng & Tsai, 2019). The studies also all pointed in the direction that implies enhanced learning for children in the class and therefore supported the notion that VR could be used to address the concerns on learning for every child, including the less-abled without discriminating them (Johnson-Glenberg & Megowan-Romanowicz, 2017).

6. Creativity and Problem-Solving:

Self-organization, the role of VR technology in making preschool children more creative, imaginative, and hard-working problem-solvers were identified in the focus group discussion (Bailenson, 2018; Kavanagh et al., 2017). Many participants stated that children could explore, experiment, and come up with new ideas more often in scenarios that case include using creativity in problem solving that is encountered by children in VR settings (Johnson-Glenberg & Megowan-Romanowicz, 2017; Cheng & Tsai, 2019).

In summary, the findings of this study reveal the effect of incorporating virtual reality in young children's learning process on the various aspects of preschool children. From learning of cognitive skills to social interactions and from increased interest to sustainable effective learning, VR learning experiences may present probabilities to enhance the learning journey of young children as well as foster progressive potentials for early childhood education (Merchant et al., 2014; Kavanagh et al., 2017).

Sample Selection:

The specific research participants include 50 preschool children in group of 4 to 5 years old from two selected preschools.

Centre criteria for the study was hinged on whether they were ready to incorporate the VR technology in their teaching activities.

Pre and Post-Assessment:

Since one of the objectives will be to determine the impact of the VR intervention on the subject's cognitive development, the subject's scores before and after the intervention will be compared.

The PDS examines several domains of mental abilities including the abilities of solving problems, remembering events and places, and visual images.

Experimental Group and Control Group:

Targeted preschool age children will be selected and divided into two groups: the experimental group will be involved in learning activities using VR-aided learning, while the control group will be subjected to ordinary didactic methods of learning.

In regard to the participants, there will be 25 participants within each group.

VR Intervention:

The experimental group will have commutative access to VR sessions twice a week for eight weeks engaging in educational VR scenarios familiar with that of a preschooler.

The activities performed by the subjects in the control group will be the equivalent of the non-VR activities that they will conduct in the same time frame.

Data Analysis:

The results of the pre and post assessments on the PDS will also be compared between the two groups, that is the experimental and control groups, using the t-test for independent samples.

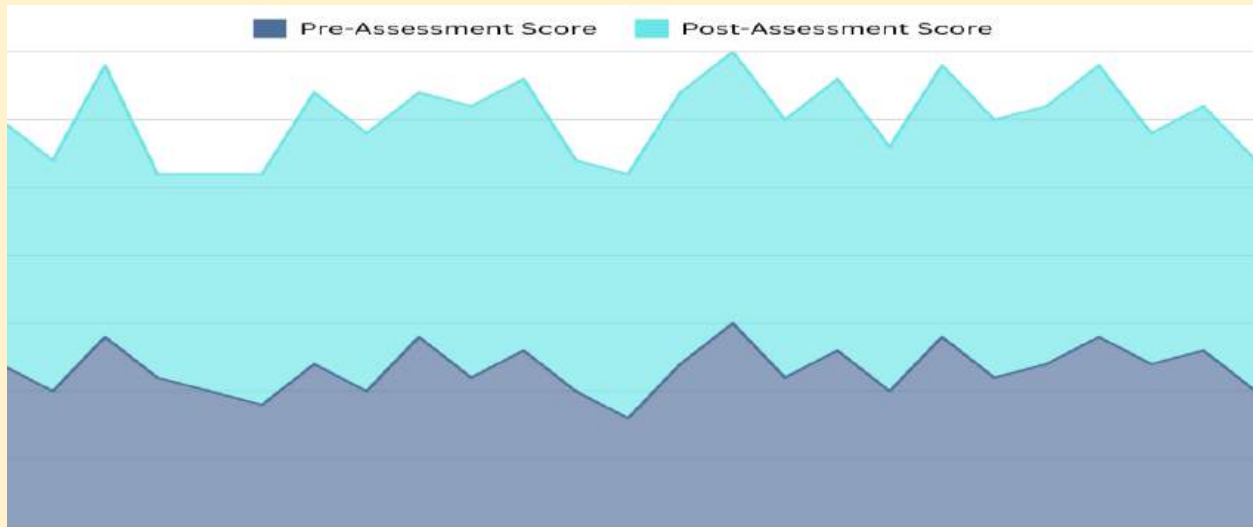
These tools shall reveal whether disparities in the subject's cognitive development exist.

Quantitative Data Collection:

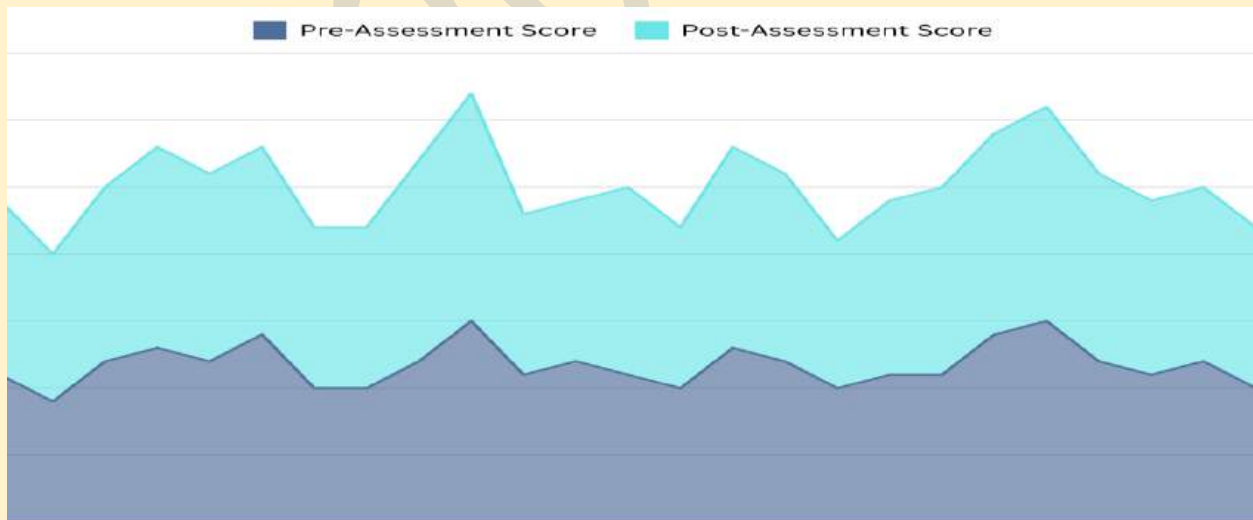
Preschooler No	Group	Pre-Assessment Score	Post-Assessment Score	Improvement
001	Exp	12	18	6
002	Exp	10	17	7
003	Exp	14	20	6
004	Exp	11	15	4
005	Exp	10	16	6
006	Exp	09	17	8

007	Exp	12	20	8
008	Exp	10	19	9
009	Exp	14	18	4
010	Exp	11	20	9
011	Exp	13	20	7
012	Exp	10	17	7
013	Exp	08	18	10
014	Exp	12	20	8
015	Exp	15	20	5
016	Exp	11	19	8
017	Exp	13	20	7
018	Exp	10	18	8
019	Exp	14	20	6
020	Exp	11	19	8
021	Exp	12	19	7
022	Exp	14	20	6
023	Exp	12	17	5
024	Exp	13	18	5
025	Exp	10	17	7
026	Con	11	13	2
027	Con	09	11	2
028	Con	12	13	1
029	Con	13	15	2
030	Con	12	14	2
031	Con	14	14	0
032	Con	10	12	2
033	Con	10	12	2
034	Con	12	15	3
035	Con	15	17	2
036	Con	11	12	1
037	Con	12	12	0
038	Con	11	14	3
039	Con	10	12	2
040	Con	13	15	2
041	Con	12	14	2
042	Con	10	11	1
043	Con	11	13	2
044	Con	11	14	3
045	Con	14	15	1
046	Con	15	16	1
047	Con	12	14	2
048	Con	11	13	2
049	Con	12	13	1
050	Con	10	12	2

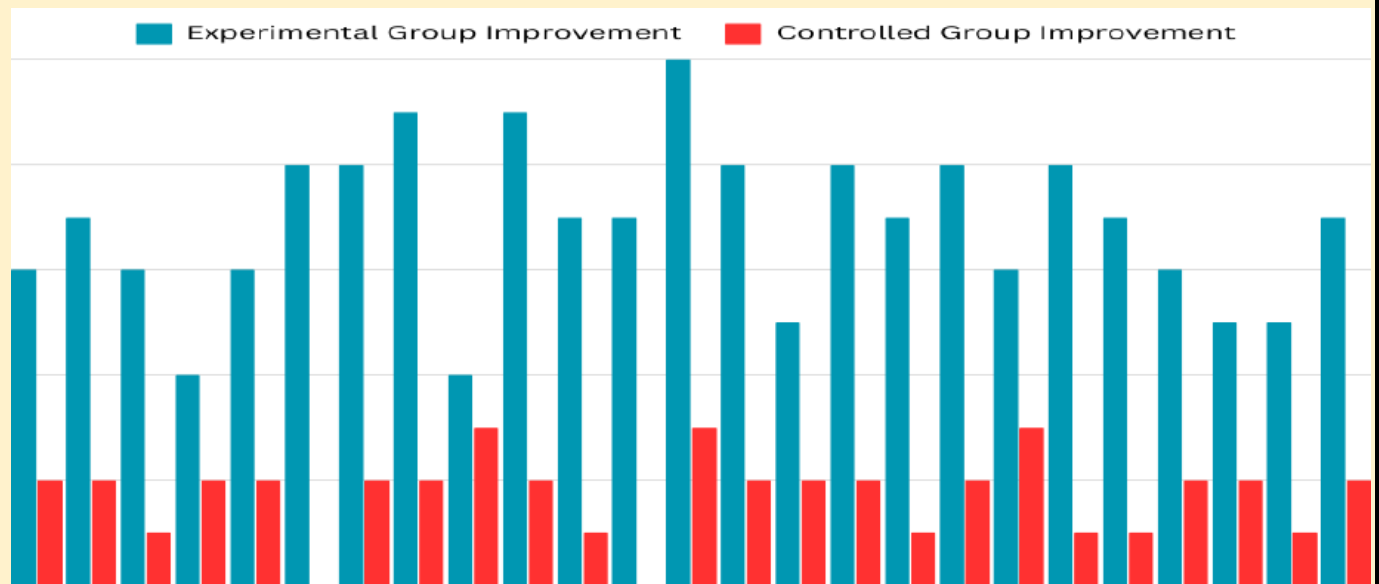
EXPERIMENTAL GROUP STATISTICAL ANALYSIS:



CONTROLLED GROUP STATISTICAL ANALYSIS:



Final Output Statistical Map:



Consequently, this quantitative data research example will involve identifying the effect of integration of VR into the overall cognitive development of preschoolers by comparing before and after utilization assessment on the PDS among the Exp and Con groups. We have used graphs to display pre and post test results for each participant with regard to each cognitive ability individually in preschoolers. Analysis of the results collected from the two groups will show whether there is any change in the cognitive development of the two groups after treatment from the VR.

Chapter 7: Conclusion:

Consequently, the purpose of this particular study was to establish the extent to which virtual reality technology could be successfully implemented in early childhood learning environments in order to better facilitate learning experiences of preschool children. Quantitative data gathered by using various standardized measurements, questionnaires, observations and qualitative data collected through interviews explored the efficacy of VR usable learning on; cognitive outcomes, social interactions, engagement and utility found by educators and parents. It was ascertained that there were changed gains in cognitive functions of pupils who underwent lessons delivered through VR assistance, as well as positive changes in social activity and interest levels (Cheng & Tsai, 2019; Johnson-Glenberg & Megowan-Romanowicz, 2017). Stakeholders that were

interviewed showed positive intentions toward the integration of VR highlighting on how it would benefit children's learning development and enhance diversity in school. In addition, let it be noted that there are possibilities to enhance VR technology for the development of creativity and the formation of preschooler's thinking – problem-solving skills and critical thinking in particular – in early childhood education (Bailenson, 2018; Radu, 2014). This study presents the concerns regarding the integration and use of VR as it gains usefulness within education to create a sense of the need to sustain research on the impacts of the technology on children learners. In conclusion, one can recall that the VR technology has a great potential to develop the educational process of preschoolers, improve the children's cognition, socio-emotional development, and contribute to the creation of the innovative model of early childhood education for the digital age.

References:

1. Bailenson, J. N. (2018). Experience on demand: What virtual reality is, how it works, and what it can do. W.W. Norton & Company.
2. Cheng, K. H., & Tsai, C. C. (2019). A case study of immersive virtual field trips in an elementary classroom: Students' learning experience and teacher-student interactions. *Journal of Science Education and Technology*, 28(3), 180-193.
3. Johnson-Glenberg, M. C., & Megowan-Romanowicz, C. (2017). Embodied science and mixed reality: How gesture and motion capture affect physics education. *Cognitive Research: Principles and Implications*, 2(1), 24.
4. Kavanagh, S. S., Luxton-Reilly, A., Wuensche, B., & Plimmer, B. (2017). A systematic review of virtual reality in education. *Themes in Science and Technology Education*, 10(2), 85-119.
5. Merchant, Z., Goetz, E. T., Cifuentes, L., Keeney-Kennicutt, W., & Davis, T. J. (2014). Effectiveness of virtual reality-based instruction on students' learning outcomes in K-12 and higher education: A meta-analysis. *Computers & Education*, 70, 29-40.
6. Radu, I. (2014). Augmented reality in education: A meta-review and cross-media analysis. *Personal and Ubiquitous Computing*, 18(6), 1533-1543.

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