# Training Teachers Using Action Research for Innovation in Early Childhood Education Literacy

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**Abstract.** Action research is a crucial authentic training tool in teacher education programmes. The visual arts in early childhood education (ECE) are important to release children's creativity and help their engagement skills. This case study examines the experiences of two preservice teachers in the UAE who completed action research projects during their final year of teacher training. Their participants consisted of four groups of children aged between four to six years. The preservice teachers were required to conduct interviews, do classroom observations, and do journalling, while their progress was monitored by a supervising instructor. The NVivo 12 software was used in the analysis of final reflections and interview responses. Three main themes and several important observations emerged from the experiment. The findings suggest that preservice teachers value action research as an authentic practical field research experience. Action research can positively impact literacy teaching using visual arts and 21st-century skills in early childhood despite challenges such as limited space and resources. These should be addressed to enhance implementation.

**Keywords:** action research; early childhood education; literacy; preservice teacher education; visual arts

## 1. Introduction

Teachers of contemporary ECE are poised to transform pedagogical practices to enhance literacy among students through 21st-century skills such as problem-solving, critical thinking, collaboration, and communication skills (Fernández-Santín & Feliu-Torruella, 2020; Pakarinen & Kikas, 2019). Previously, teachers emphasised collaboration as an instructional strategy to encourage children to work together to achieve a designed objective (Tompkins, 2014). However, targeting creativity can be difficult in the early years; consequently, Brusic and Shearer (2014) urge teachers to focus on practices that promote cognitive,

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intellectual, and social connections across all subjects. The goal of any education system is to nurture critical thinkers. Therefore, in the early years, teachers often involve children in activities that go beyond memorisation to providing a wide variety of thought-provoking activities to enable analysis, evaluation, interpretation, and synthesis (Lonigan et al., 2011), using diverse forms of literacy.

Literacy can be stimulated through participation in visual arts with teachers encouraging children to explore new vocabulary and engage in meaningful discussions (Chang & Cress, 2014) by incorporating 21st-century skills. ECE teacher training programmes support this approach by emphasising the creation of meaningful, authentic learning experiences for preservice teachers that will improve their teaching skills through innovative approaches (Campbell & Levin, 2009; Yeigh & Lynch, 2017). Generally, researchers consider innovative learning as instructional strategies or tools used to support strong academic performance (Wooten & Cullinan, 2009). However, pedagogical practices that focus on literacy development attempt to bridge the gap between literacy and content, thereby ensuring children are prepared for standardised testing (Wagner & Dintersmith, 2015). Currently, literacy is taught across subjects by teachers who are responsible for literacy instruction (Wagner & Dintersmith, 2015).

Visual arts are an important medium for children to learn skills as they involve high levels of contact with discovery. In reporting the outcome of an integrated arts workshop, Wright (2001) noted that discovery, pursuit, self-awareness, communication, interaction, perception, and critique are all developed through art. Children who are encouraged to use "artistic language" in the classroom tend to communicate using a unique language (Plummeridge, 1991), and engage while developing 21st-century skills. Further, art helps with cognitive development, and quantifying, or systematising intellectual abilities. Accordingly, teacher education programmes are important for teaching instructors to assist children with these expressions in ECE.

Action research in teaching practice enables preservice teachers to engage in an assessment that links theory to practice, enhances their literacy teaching through innovative approaches (Ghiatău et al., 2011), and bridges the gap between theoretical concepts and practical implementation (Montecinos et al., 2014). In this qualitative study, two preservice teachers used action research in a UAE ECE classroom to develop innovative teaching practices while teaching literacy using 21st-century skills and visual arts. The preservice teachers were exposed to experiences that provoked contextualised reflections and drew upon the integration of theoretical resources to further their understanding. Although Grossman (2005) often refers to an indirect link between theory and practice, the premise of this model was based on these instructors' reflections and perspectives to achieve a higher level of rigour.

The next section explores the theoretical framework and action research paradigm regarding literacy teaching approaches in ECE. The method and results follow, after which a discussion of the findings is presented.

## 2. Theoretical framework and research paradigm

The research is influenced by Vygotsky's theory as applied to the responsive social contexts provided in early childhood education. Vygotsky claims children are "capable of far more competent performance when they have assistance from adults in their zone of proximal development so adults take a reactive and participatory role" (Vygotsky, 1978, as cited in Smith, 1993, p. 47). This study combined preservice teachers' final reflections on capstone projects and their responses during weekly progress interviews with their instructors using a case study approach.

A case study was considered appropriate as it allows the investigation of a phenomenon within an authentic context when boundaries between the phenomenon and its context are unclear. It is also supported by various sources of evidence (Yin, 1984). The research goal was to extract participants' experiences to arrive at a clear understanding of the phenomenon (Creswell, 2014). Bracketing ensured the researcher's experiences and expectations did not influence the preservice teachers' understanding of the phenomenon (Carpenter, 2007). The instructor's role was crucial to examine the quality of the action research practices leading to preservice teacher training using the action research cycle. All phenomena included in this research interacted with and highlighted innovative practices in literacy teaching to provide deeper insights (Drack, 2009) into Emirati ECE literacy education practices.

Action research is a systematised process for collecting data in school and classroom settings about how teachers teach and how well their students learn (Mills, 2003, 2007). When supported by mentor teachers, preservice teachers are also empowered to examine and transform their teaching practices by collecting data that are relevant to the current issues in their context such as literacy teaching approaches.

Linking the terms 'action' and 'research' highlights the method's essential feature, namely that of testing ideas in practice to increase knowledge about or improve curriculum, teaching, and learning (Kemmis et al., 2014). Action research that explores intervention in practices is used for various purposes: school-based curriculum development, professional development, systems planning, school restructuring, and as an evaluative tool (Creswell, 2014). Alternatively, participatory action research aims to improve the qualities of organisations, communities, and families through empowerment that leads to social change (Fraenkel et al., 2012). This type of research explores the quality of innovative literacy teaching approaches for future impact on the UAE's National Agenda for Education by improving the quality of teachers' and children's literacy levels.

This study was also influenced by Mills's (2003) four-step action research process of dialectic action research, i.e., identification of an area of focus, development of an action plan, data collection, and data analyses and interpretation. Mills described this model as research done by teachers for teachers and students, not research done on them. The model was also dynamic, responsive, and adaptable to any context for various purposes (Mills, 2014). This paper evaluated the use of

action research as part of the training preservice teachers undergo in implementing innovative literacy teaching approaches to explore possible future improvements. The next section provides the research context for teacher action research in early childhood literacy development in the UAE.

**Early childhood literacy development in the UAE–research context**
Literacy development in Arabic and English is the core of ECE in the UAE and is considered the foundation for academic and cognitive development (AlShamsi, 2021). Therefore, establishing a strong base in Arabic and English literacy is essential in the Emirati bilingual context (Aljanahi & Alsheikh, 2020; AlShamsi & Alsheikh, 2020). To improve this situation, the UAE government launched a National Agenda in 2014, mandating high rankings in various standardised tests, such as the Programme for International Student Assessment and the International Mathematics and Science Study (proficiency in Arabic and English is crucial to achieving high scores in these tests).

Literacy development is a language development tool for cognitive and social skills (Littleton & Mercer, 2013). Classroom literacy practices and approaches assist with essential aspects of early literacy focus such as oral language and communicative skills, concepts of print, motivation and engagement, academic language through vocabulary, alphabetic knowledge, reading fluency, comprehension, spelling, and writing (Kennedy, 2018). Literacy also evolves with society and technology, transforming literacy practices and environments globally. Therefore, active and successful participation in a 21st-century environment, supported by innovative practices such as visual arts, requires children to develop age-level communicative and academic language (National Council of Teachers of English, 2019). Visual arts are a powerful means through which children can explore new meanings and experiences, deepen their knowledge and develop creativity (Brooks, 2009; Ramli & Musa, 2020).

Classroom-based action research can improve preservice teachers' literacy teaching experiences by embedding innovation in their daily practices through reinforcing, modifying, or changing perceptions, based on informal data and non-systematic observations. During the implementation phase, preservice teachers use informal assessment tools such as story retelling, discussions, drawings, writings, running records, and comprehension questions to gather data (Kemmis et al., 2014). Therefore, teachers learn what they can influence, and make changes that can produce tangible results. The process provides the opportunity to work with others and to learn from the sharing of ideas. Action research is pivotal for three reasons: to promote personal and professional growth, improve practice to enhance student learning, and advance the teaching profession (Kemmis et al., 2014). Kemmis et al. (2014) and Mills (2014) suggest that action research is committed to examining classroom teaching as well as the principles and effects teachers' actions have on students' development in a reflective and meaningful way. In light of this, Holter et al. (2014) perceived action research as a tool for positive change in the school's community through research practitioners.

**Teaching practicum in Higher Colleges of Technology programme**

Students at the Higher Colleges of Technology (HCT) in the Bachelor of Education programme are expected to demonstrate that they have achieved the UAE's Teacher and Educational Leadership Standards (TELS), the School Inspection Framework, and the Ministry of Education's (MOE) teacher annual appraisal to enhance teaching and learning (UAE Government Portal, 2021). The standards set out in the HCT's ECE programme are mandatory requirements for effective teaching in the UAE and must be met by graduation. These standards must meet the expectations of the MOE and the TELS.

Enrolment in this research-based exercise aimed to help ECE teachers deal with students from diverse backgrounds and abilities in Emirati ECE classroom settings. The practical experience and the research course are essential for helping preservice teachers understand the unique academic and communication differences in modern student-centred classrooms. In this study, both preservice teachers focused on literacy development through innovative approaches such as 21st-century skills and visual arts. Since they both taught bilingually, they also had a good grasp of the current situation in the UAE-ECE schools.

Practical experience is a basic and crucial requirement for a preservice teacher education programme (Yeigh & Lynch, 2017). Creating a balance between campus-based and internship learning through field experience is essential. Therefore, it is important to bridge the gap by linking theoretical knowledge with practice as an essential component of preservice teacher training through methods such as action research (Zeichner, 2010). The balance between college learning time and real-life practicum and professional experience cannot be overemphasised (Deed et al., 2011).

The preservice ECE programme at HCT incorporates practical experience through exposure to professional teaching and learning experience and enables preservice teachers to understand Emirati schools' routine life and reality and gain practical experience teaching literacy in physical classrooms. The crucial aspect of the practical application is to understand daily teaching and learning in the Emirati context and gain sufficient experience as real teachers. The practical and professional experience in schools with practicum courses for preservice teachers equips them with the opportunity to transfer theory into practice through observation and teaching methodologies in their area of focus such as literacy.

Teacher reflection is considered an important element in meeting students' diverse learning needs. Data-driven decision-making can help students perform more effectively (Schildkamp & Poortman, 2015); such data would normally be gathered from action research with appropriate reflection on practice. Therefore, before preservice teachers graduate from HCT they must conduct independent action research projects and demonstrate their ability to make data-driven and evidence-based decisions in the classroom. This is one of the unique features of the HCT programmes. Preservice teachers exposed to this kind of initial training benefit from ongoing reflective professional development to improve literacy through innovative approaches (Osterman & Kottkamp, 1993).

This qualitative study is based on the reflections of two preservice teachers as they implemented action research and collected weekly progress data. The action research followed Mills's (2003, 2014) framework, which was crucial to executing the next steps. The following research questions addressed this objective:

1. How does action research help preservice teachers integrate 21st-century skills and visual arts-based innovative approaches in teaching literacy?
2. How could the action research experience of preservice teachers be improved, enabling them the opportunity to integrate innovative practices in teaching literacy?

## 3. Materials and method

The research design generated an in-depth and multi-faceted understanding of participants (Tellis, 1997), through written documents and reflections (Patton, 1990). These reflections contributed to developing a research outline (Stake, 1995) to generate a broader understanding of innovation in literacy teaching in the UAE. The preservice teachers conducted practical activities during their internship which were quite useful as they were then able to better understand the issue in real practice (Crowe et al., 2011; Flynn & Korcuska, 2018). This enabled them to explore the integration of innovative approaches to literacy teaching and evaluate the use of action research to facilitate this experience. The practical action research methodology suited the capstone project for Y-4 students in the HCT-ECE programme. This paper assessed and analysed the efficacy of practical action research in the Emirati ECE context.

### Participants

Year four-semester students conducted research in their final semester practicum over eight weeks, with weekly interventions. Each action plan had been developed in a previous course, refined, and enhanced for their action research course. The data collection and analysis plans were agreed upon in advance with lecturers and included reflective journals, classroom observations, and interviews that were then analysed for main points and themes, and further reflected upon. After a data analysis of the final action research reflections, students discussed, triangulated, and reflected on the findings in interviews with the lecturer and formatted the document like a dissertation. While all student-teachers in the project were invited to participate, only two showed keen interest. These two participants, Sarah and Laila, (pseudonyms) were selected to reflect on their practices since both were exploring literacy teaching through innovative approaches.

Both participants were placed at mixed-gender government schools offering ECE for six weeks in semester seven and eight weeks in semester eight. They worked as assistants to their mentor school teachers (MST) and observed taught classes as well as teaching a minimum of 15 full lessons while engaging in continuous weekly interviews with their instructor.

A. Sara investigated how 21st-century skills (critical thinking, collaboration, creativity, and communication) supported student learning in literacy. She selected this topic mainly from a concern for preparing young children for the

future at an early age and a conviction that developing the four skills while teaching or integrating literacy would be imminently necessary.
B. Laila investigated the integration of visual arts with literacy or integrating literacy with other subjects as an innovative approach that can facilitate literacy teaching and learning. She chose this topic based on experience from a previous teaching practicum that children learn best by integrating visual arts into their learning. Laila also observed in other student practicums that learning through art has a positive impact on EC students' writing and communicative skills.

**Instrument**
All major reflections were analysed using NVivo 12 software. Initial codes and themes were devised and identified to fit with the study objectives and research questions. These were monitored and approved by MST and MCT. All efforts were made to involve the participants in the analysis and keep respondents' texts in their original form, save for the correction of some grammatical and typographical errors, to minimise the researcher's bias. Participation in the research was voluntary and the participants received no compensation. This helped to ensure that the research process was transparent and bias free.

Reflections were provided after the series of scheduled interviews, the initial presentation of the findings, and the final submission of the action research. This was to ensure that they genuinely reflected the students' experience and not just responses they felt the lecturer wanted to hear. This was to ensure responses were based on the students' practical and professional experience in innovative professional and practical experiences in literacy teaching.

**Ethical considerations**
The researcher first approached the HCT to enquire about permission to conduct the research. This was subsequently formalised and approval was given in February, 2021. The two participants were provided with informed consent and advised that their participation did not affect their final grade or graduation process. Both participants gave their verbal consent.

**Data Analysis**
Data analysis occurred in three phases following the research design. Each phase outlined actions taken by either the researcher or the participants.

**Implementation of action research**
The instructor implemented four 'moments' of action research (Kemmis et al., 2014) to ensure students were appropriately prepared for their experiment. The students were required to follow the four-step action research process (Mills, 2003) supported by the 12-point framework for action research (Mills, 2014). Both approaches in literacy teaching supported the improvement of literacy levels in UAE schools and the ECE Emirati context.

*The instructor's approach to data collection*

The instructor taught one action research class for one capstone project course (N=5 students). Two students were purposefully selected to participate in the

research and implement their practical action research projects. As indicated in Figure 1, the instructor planned the overall research steps and follow-up with the students, ensuring their commitment and the validity of the data.
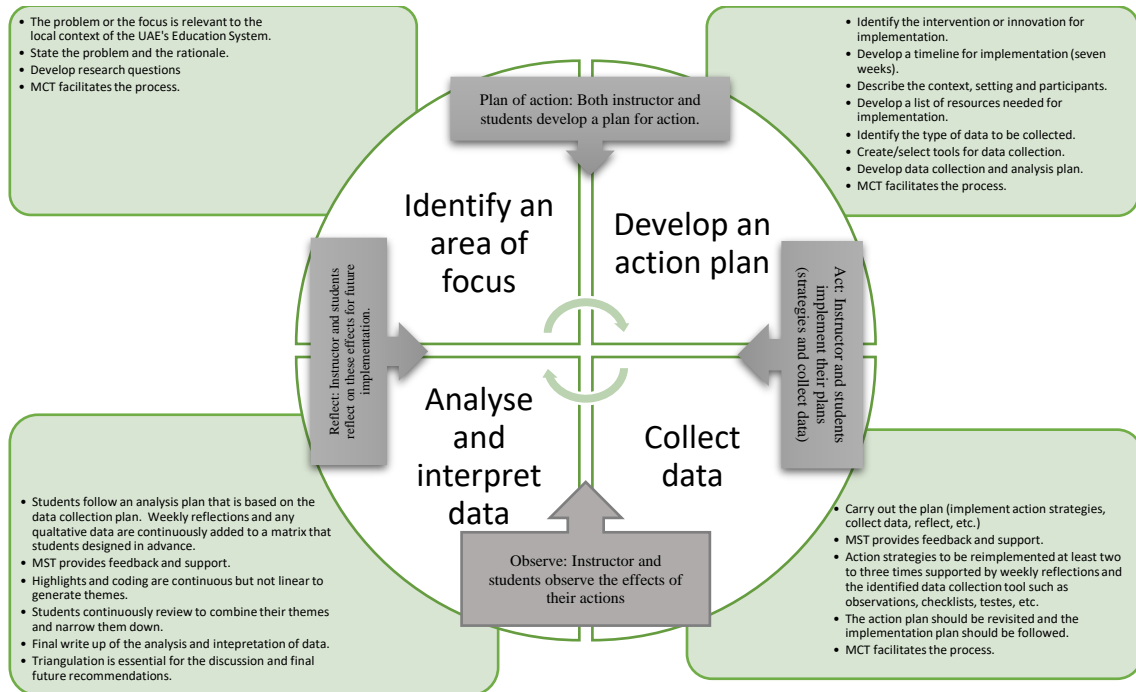


- The problem or the focus is relevant to the local context of the UAE's Education System.
- State the problem and the rationale.
- Develop research questions
- MCT facilitates the process.

- Identify the intervention or innovation for implementation.
- Develop a timeline for implementation (seven weeks).
- Describe the context, setting and participants.
- Develop a list of resources needed for implementation.
- Identify the type of data to be collected.
- Create/select tools for data collection.
- Develop data collection and analysis plan.
- MCT facilitates the process.

Plan of action: Both instructor and students develop a plan for action.

Identify an area of focus

Develop an action plan

Reflect: Instructor and students reflect on these effects for future implementation.

Act: Instructor and students implement their plans (strategies and collect data)

Analyse and interpret data

Collect data

- Students follow an analysis plan that is based on the data collection plan. Weekly reflections and any qualtative data are continuously added to a matrix that students designed in advance.
- MST provides feedback and support.
- Highlights and coding are continuous but not linear to generate themes.
- Students continuously review to combine their themes and narrow them down.
- Final write up of the analysis and intepretation of data.
- Triangulation is essential for the discussion and final future recommendations.

Observe: Instructor and students observe the effects of their actions

- Carry out the plan (implement action strategies, collect data, reflect, etc.)
- MST provides feedback and support.
- Action strategies to be reimplemented at least two to three times supported by weekly reflections and the identified data collection tool such as observations, checklists, testes, etc.
- The action plan should be revisited and the implementation plan should be followed.
- MCT facilitates the process.

**Figure 1: The instructor's approach to data collection**

i.      *Sara's case.* Sara's study site was a government school in Al Ain following the MOE curriculum. She conducted her research on two classes, with 20 and 22 children respectively, aged around five years.

Sara's MST taught science, maths, and literacy. The first class of 20 students (girls = 12; boys = 8) and the second of 22 students (girls = 12; boys = 10) were divided into four learning levels (mastered, developed, developing and emerging) and three special cases.

Sara observed and taught lessons, made at least six weekly reflections in journals which were the main basis for the conclusions, and interviewed the observed teacher. She noted the teacher imparting 21st-century skills of communication, creativity, collaboration, and critical thinking. This involved strategies such as problem-solving skills (e.g., discussing the differences between living and non-living things), using innovative technology such as the electronic whiteboard and helping the children present ideas using cameras and communicating online. The teacher also made use of video games in teaching and online group work. Critical thinking was encouraged through open-ended questions and classification exercises. All activities included discussions and literacy aspects that supported the English lessons. Activities included the enhancement of sight words, vocabulary, speaking, phonemes, and the like.

Sara concluded that using 21st-century skills helped teachers to organise their teaching strategies and methods based on students' needs. Students were supported to face problem areas and be prepared for solving issues by focusing on their communicative skills development and using their learned vocabularies and content to ensure age-level academic language development. Sara concluded that English teachers with these skills would be ready to support students in creativity, critical thinking, collaboration, and communication by choosing stories, videos, puzzles, and activities, as well as helping students use technology to find solutions by relying on their grade level literacy skills, forming groups and collaborating in the activities that focus on 21st-century and literacy development.

ii.      *Laila's case.* Laila's study site was two kindergarten classes in Al Ain, a government school that follows the MOE curriculum. This mixed-gender school had only kindergarten classes. The first class had 27 students (girls = 18; boys = 9) while the second had 26 (girls = 15; boys = 11). All students were aged between four and five years old and were Emirates. The two teachers in the classroom consisted of an Arabic native speaker who taught Arabic and Islam and an English native speaker who taught English, science, and maths (the latter was interviewed).

Laila made seven observations, and six journal reflections, and interviewed the observed teacher. Laila observed and reflected on interventions such as asking the students to draw and label the body parts of a lion, encouraging them to use imaginative writing skills. The teacher also asked students to present numbers by drawing circles. In the teaching sessions, she asked students to draw an animal with four legs, then draw a human and compare the similarities and differences between them. She also asked students to draw the chicken life cycle, and then describe it to her; they also had to plant a seed and record a video of the process.

In her summary, Laila developed three themes: a) visual arts that integrated literacy elements related to the English lessons increased students' creativity by fostering students' imagination and critical thinking; b) visual arts that played a recurrent role in motivating students to develop emerging writing and communicative skills; and c) visual arts activities that improved students' level of social interaction using the desired age-level academic language.

**Rigour in preservice teachers' action research**
The following data are based on the reflections of the two preservice teachers. Both shared their views and reflections, with measures taken to ensure that participants at both sites were independent and did not influence each other's reflections.

Ensuring the validity and applicability of final research recommendations was crucial to help in-service and preservice teachers understand the importance of implementing unique and innovative literacy teaching approaches. The lecturer in charge of the students' projects had a weekly meeting with a group of five students for two hours. Sometimes a student was given an additional 30 minutes

of individual meeting time. Additionally, four formal interviews were conducted on their research topic and reflections.

The instructor used system-wide standardised tools. Melrose (2001) linked the rigour of action research with the procedures. Stringer (2007) noted that rigour involved checking to ensure results were not biased or reflected a personal perspective. Consequently, weekly interview progress sessions, and four MST observations followed by four feedback sessions were supported by four MCT observations. Feedback sessions triangulated the findings and produced the first summative assessment. The implementation of the next steps in the feedback from MCT and MST was checked and monitored by both teachers. The data collected during the classroom implementation was checked regularly by both MST and MCT. MSTs reviewed and approved the results of the research before final submission but ensured unbiased results (Figure 2).
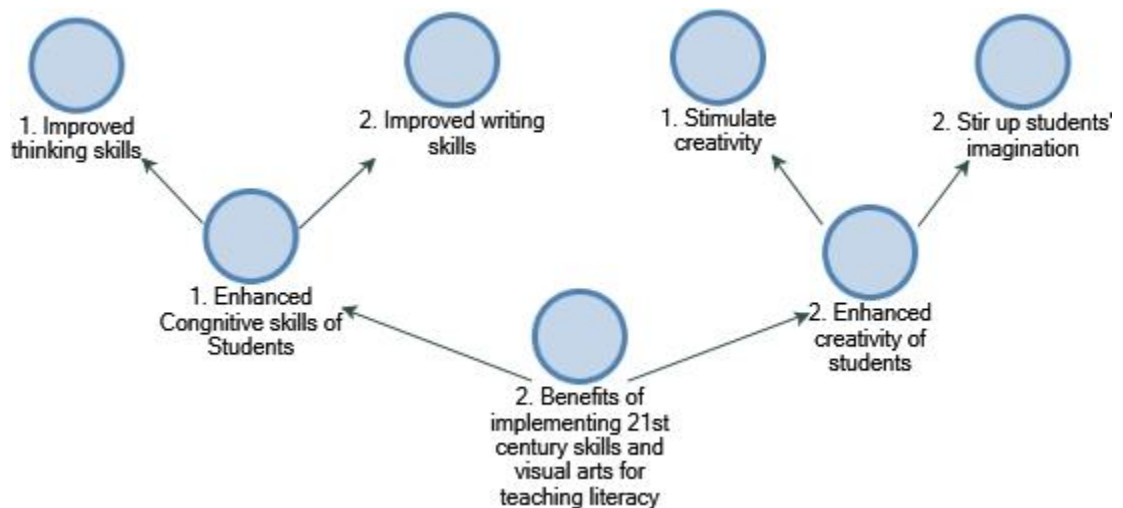


**Figure 2. Benefits of implementing 21st-century skills and visual arts for teaching literacy**

Each student concluded their research with findings and recommendations. To ensure rigour in students' practical research and participatory data analysis, Bogdan and Biklen's (1998) approach to independent coding and categorising was adopted based on the researchers' pre-assumed categories or what emerged from the data during the implementation. Participants discussed the coding and themes with their MSTs. Sara and Laila completed an inter-rater reliability exercise with their MSTs by finding the ratio of items on a previously agreed number of themes or rated codes which is referred to as percent agreement (Carmines & Zeller, 1991). A good rate of inter-rater reliability of 75% for Sara and 85% for Laila was established, resulting in a good degree of confidence in the responses provided by the preservice teachers. The instructor discussed the results with instructors who were currently teaching the same course during the moderation session for each assessment.

## 4. Findings

Three themes emerged from the first research question: *How does action research help preservice teachers integrate 21st-century skills and visual arts-based innovative practice in teaching literacy?*

*Theme 1: Sensitisation of the importance of 21st-century skills and visual arts for teaching literacy*

This theme comprised two initial codes:

i. The reflections showed the need to highlight the importance of visual arts in the early years. Sara stated, "*Throughout my four years of teaching training, I realised visual arts are excluded across the academic curriculum and there is a lack of focus on the influence of visual arts on the students' different skills, which propelled me to set up this research.*" She further noted, "*Children appreciated visual arts when speaking about their projects. We observed there was an improvement in their level of proficiency and confidence.*" Laila noted, "*Artwork encouraged children to engage with other children socially. They exchange ideas, draw together and share materials and resources.*" In addition, artwork encouraged children to "*discuss and share their work, sometimes re-visit them and add some changes. This encouraged dialogue in small groups.*" The link with writing is clear to the student. Laila continued, "*When images or drawings are used in any writing activity, the children write better and try to express themselves.*" She noticed "*students are showed a higher level of excitement, engagement, and participation when we include any aspect of the visual arts in math, science, and English lessons.*" She noticed also, "*children utilise visual arts in science projects and students were engaged and excited to add more writing on their projects, speak out loudly about their process and communicate confidently with other team members.*" Generally, Laila noticed "*there is a clear aspect of creativity included when children utilise arts in other subjects.*"

ii. The reflections also emphasised 21st-century skills in the ECE context: Teacher C wrote, "*I have looked at developing literacy in ECE context through the utilisation of the 21st-century skills.*" Further, Teacher C added, "*When we encouraged children to work collaboratively on a science project, they had to solve problems, think critically by stimulating their curiosity, and finally produce a final creative project.*" The most interesting part of it, she added was, "*the clear use and development of communicative skills improved, cognitive language development and emerging writing skills while applying the project.*" The other student remarked, "*Communication skills helped my students learn how to listen and then share their opinion, simple points of view were shared using guided lesson vocabulary while focusing on the lesson content, my goal was developing the academic language while allowing the students to speak freely.*"

*Theme 2: Adopting 21st-century skills and visual arts in teaching practices*

This theme comprised three codes:

i.  Test analyses revealed that "*one of the important issues is that the teachers are supposed to strike a tricky balance between theory in use and practice.*" All participants valued the process of the action research as it enabled them to find different possibilities in schools that enhance their literacy teaching skills. For example, Sara remarked that action research "*helps in trying out actions, reflect, evaluate and re-plan for future actions.*" Similarly, Laila, described action research as "*the process of policymaking in the school because the effectiveness of triangulated data is one of the best practices we managed to share with the school leaders.*"

ii.  They commented on the level of creativity when incorporating visual arts and the 21st century in children's daily lessons. Sara noted, "*when including painting and drawing in science lessons, children are engaged, these tools stimulate critical thinking and expose children to different options to solve problems,*" also, Sara noticed that "*when we include any kind of visual arts in our English lesson, I noticed children interpret the text, understand it, and communicate with the teacher more effectively.*" She observed that "*children are happy to share with us their artwork and put it on artwork display. Children are encouraged to incorporate communication, collaboration, critical thinking, and problem-solving when completing their artistic works this leads to creative work where ideas are shared artistically*". This also brought creativity into the teaching experience where both communicative and academic languages are developed.

iii.  Laila said, "*But the resource that I was able to create was practical in nature, and I also believe that it will be helpful in literacy development through the utilisation of 21st-century skills that lead to creative teaching experiences.*" Similarly, one of the teachers noted research-guided improvement in teaching practices "*The use of previous and current research also helps the professionals. Current research tries to summarise the best practices made by the teaching professionals that may strengthen the beginners' learning.*" Laila, "*the ongoing update of literature facilitates the application of any new strategy and expanded our knowledge in the idea of the integrative curriculum in the early years where literacy is placed as the core of all subjects.*"

*Theme 3: Enhancing student engagement*

In this theme, both teachers raised two key points:

i.  The first was about unique student requirements while teaching in the ECE context. Sara wrote, "*If they try to be too theoretical they may miss or ignore the uniqueness of their teaching practice and may also not able to address the unique prepositions raised by the individual student.*" Laila stated, "*I noticed that art was a means for a group of students to share their ideas, and visualise*

*information to make sense of the text or the topic.*" Sara noted that "*we understand that every child learns differently, so the incorporation of visual arts enabled me to open a door for some children to communicate, solve the problem, think critically and submit creative projects.*"

ii.     The second point was enhancing students' interest. Sara suggested, "*Also, it will help the teachers to know how to integrate visual arts across their learning which increases students' interest and desire to learn.*" Laila remarked, "*Understanding students' needs and the role of visual arts in their motivation to participate allowed me to focus on a group of children as artists in the class to help them further.*"
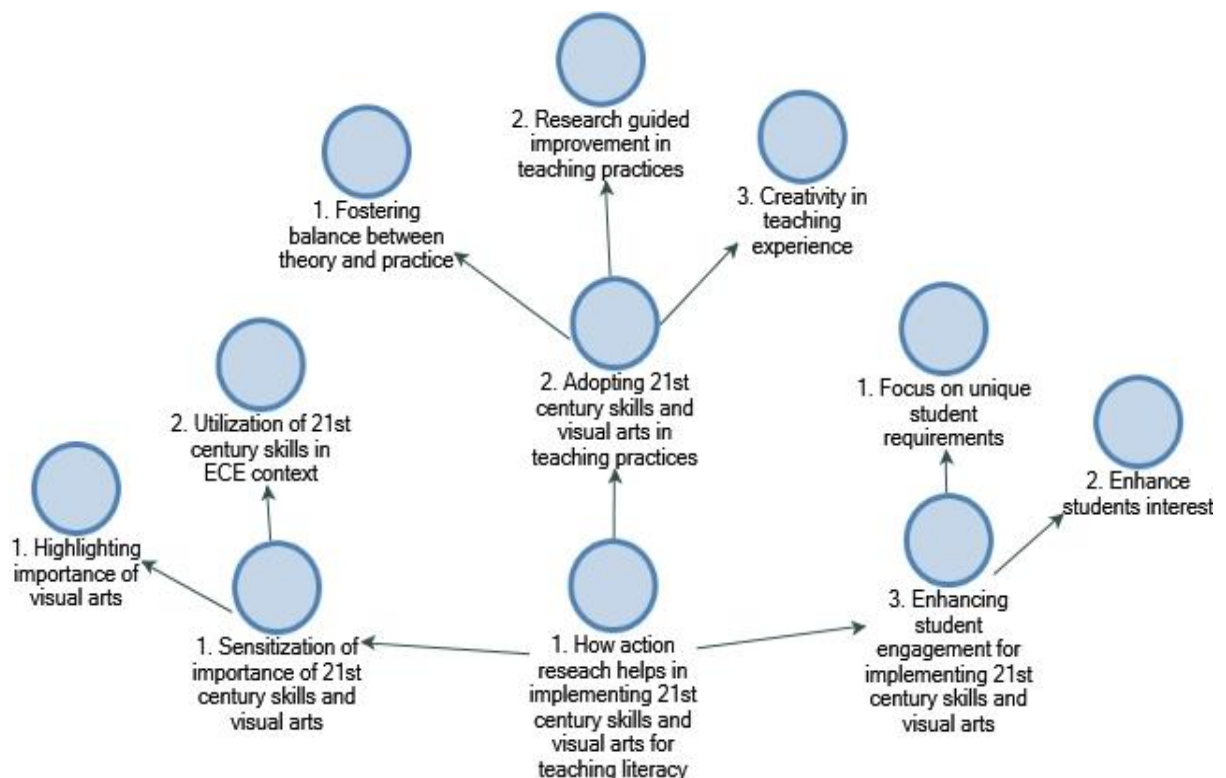


**Figure 3. How action research helps in implementing 21st-century skills and visual arts for teaching literacy**

**Improving the use of action research for literacy teaching**
The second research question was: *How could the action research experience of preservice teachers be improved, enabling them to implement 21st-century skills and visual arts-based innovative practices in teaching literacy?* The following suggestions resulted from the analysis of the teachers' reflections.

**Need for support and guidance**
Sara stated, "*Provide sufficient resources for visual art and guidance and follow the available research with a broader relevant perspective.*" Sara stated, "*We need to visit the campus at least once to use the available resources in the resources room.*" Laila suggested "*following the action plan with the support of the instructor will prevent any challenge and delay in implementation.*" Student C remarked, "*It is essential to provide*

*children with high-quality and well-managed space for art activities in schools where subjects are integrated."*

Another important point was the removal of specific obstacles. For instance, Sara noted, "*there are some other issues related to the classroom context or the change of teachers and timetable. We face issues with the readiness of the classroom or the MSTs willingness to help and support our innovative approaches. However, we believe that we need to integrate our ideas within their daily practices.*" The second theme was better teacher engagement initiated with self-assessment. Laila suggested "*Start with a self-assessment that may enable the preservice teachers to recognise their weaknesses and strengths. The next step is to study how they can get the greatest benefit by modifying their literacy teaching practice based on previously conducted research in the area of 21st-century skills, creativity, and literacy in the ECE context.*" Laila stated, "*The continuous involvement in MSTs daily school activities and professional development programmes helps us to be engaged in authentic practices while linking them to the research that is included in the research or our weekly readings.*" Similarly, Teacher C made the following recommendation: "*Engage and involve the teachers in the learning process to provide more guidance and support and to provide a better impact in the real practice.*" Student C noted, "*Our MSTs learn from our practices, and are eager to know more about the reflective practice we have in the HCT.*"
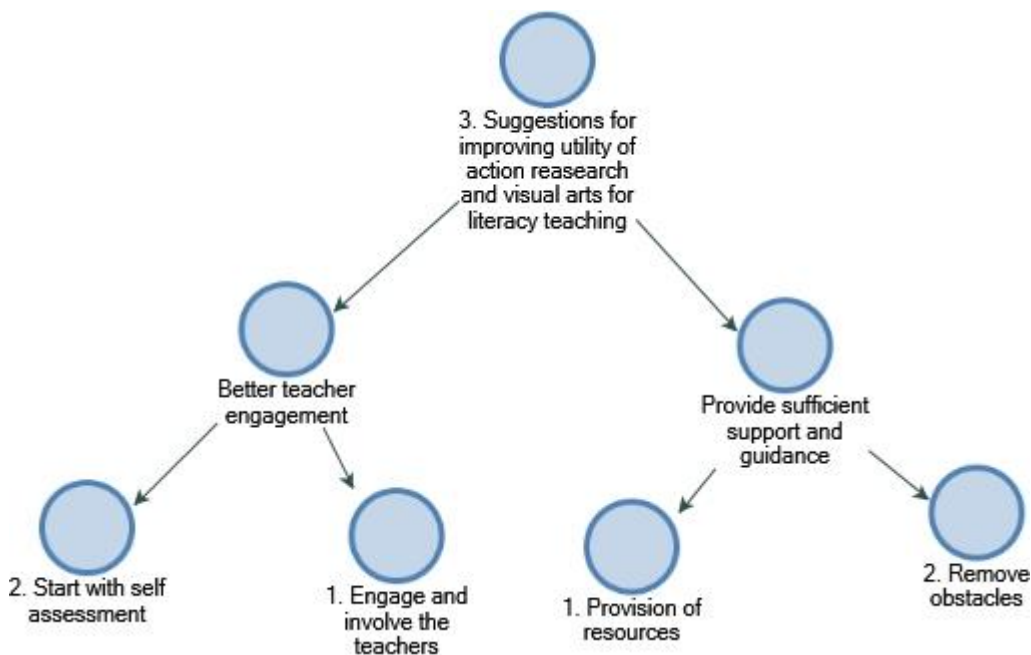


**Figure 4: Students' suggestions to improve the use of action research and visual arts for literacy teaching**

## 5. Discussion
This study examines how two preservice teachers use action research in a capstone project to explore and implement innovative approaches to teaching literacy by integrating 21st-century skills and visual arts. The research provides insights into preservice teachers' feelings and responses to action research to explore innovative ways of literacy development in the ECE teaching and learning context. Reflective teaching is a vital component of the ECE programme at HCT;

it begins from the first semester and continues throughout these teachers' teaching process. A key point gleaned from the reflections is their understanding of the need to work on developing their research skills in the ECE context. The analysis also reveals that teachers acknowledge the importance of 21st-century skills and visual arts and integrate them into their teaching strategy to enhance students' engagement.

This study supports the findings of Kemmis (2010) who contends that teachers guide their professional and practical development in the course of action research. Action research enhances self-knowledge through practical experience, and is an integral part of classroom teaching (Kemmis, 2010; Ulvik & Riese, 2016). During this research process, preservice teachers continue to grow as teachers as they acquire a practical understanding of physical classroom teaching (Smith & Sela, 2005). The significance of reflective practice in teaching and teacher education is evolutionary and explorable from different angles such as teacher value, self-efficacy, and self-reflection (Bourke et al., 2012; Ditchburn, 2015; Guidry et al., 2013; Phelps, 2010; Zeldin & Pajares, 2000).

Furthermore, Beck and Kosnik (2000) argue for a separate assessment of the impact of action research in teacher education concerning other aspects of professional and practical experience. They conclude that action research is a practical approach for preservice teachers to identify a practical problem within their classrooms and resolve it through their own applied methods. This may help preservice teachers develop a more customised and specialised approach to teaching (Beck & Kosnik, 2000). The findings of this study are also consistent with the literature that reveals that action research enhances students' cognitive and creative skills. For instance, Littleton and Mercer (2013) note that literacy develops language as a tool for cognitive and social skills in the practical classroom context.

Action research is a complex and exigent procedure that needs proper guidance and facilitation (Winter, 1998). Many teacher trainees have difficulty doing action research as their decision-making capacity can be weak (Dobber et al., 2012). Hence, this study confirms that preservice teachers need continuous support, guidance, and stronger teacher engagement. Another important finding is that preservice teachers are overwhelmed when starting the action research process since they lack research experience. Figure 5 shows the integrated framework based on the research analysis.
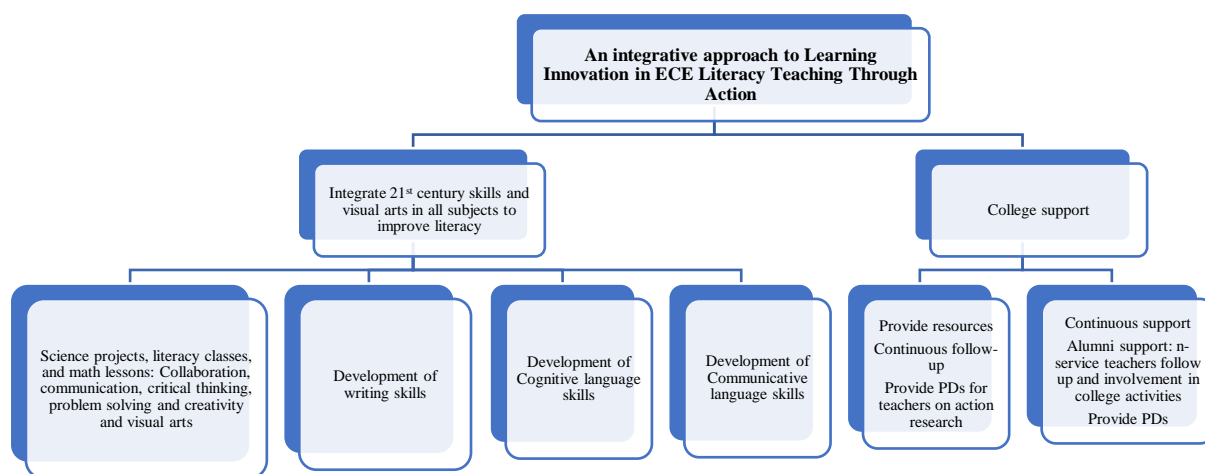
**Figure 5: An integrated framework of learning innovation in ECE literacy teaching through action research**

## 6. Conclusion

This study assesses the efficacy of action research for preservice teachers to enable their learning and implementation of 21st-century skills and visual arts-based innovation in teaching literacy within the ECE context. The method integrates the perspectives of preservice teachers' use of action research. As a secondary finding, the teachers emphasise the benefits of implementing 21st-century skills and visual arts for teaching literacy. These strategies enhance students' cognitive skills which improve significantly. Therefore, using action research is recommended to assist preservice teachers to learn how to implement 21st-century skills and visual arts in teaching literacy. Limitations of the study are the research design which is highly subjective based on the data collection and analysis, and the small sample size that limits its comparisons to international literacy scores but may be relevant to the UAE population. Despite these limitations, the in-depth analysis provided thorough reflection and the literature review suggests the work contributes to the action research literature on teacher training. Meaningful and authentic learning experiences for preservice teachers to improve their literacy teaching skills through innovative approaches are highly regarded in the ECE higher education programmes. Future research could build on these results by analysing preservice teachers' reflections on conducting action research as a final project in their teacher education and essential to their professional development.

## Declaration of interest statement

The authors declare that they have no known competing financial interests or personal relationships that could have acted to influence the work reported in this paper.

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