CREATECH

Research Report

CREATECH Research Report

CREATECH - Creative Early Education supported by Technology for Cultural Heritage

This research report has been developed in the CREATECH project (2023-2025) in the framework of Erasmus+ KA2 programme, Strategic partnerships in the field of education, training and youth.

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1. Introduction

1.1. Overview of the CREATECH project

The CREATECH project was a two-year initiative (2023-2025) funded by the European Commission under the Erasmus+ programme. The project was coordinated by The Association of Cultural Heritage Education in Finland (FIN) and implemented in partnership with INTO SCHOOL (FIN), La Fundación SM (ESP), KulturAll (SRB) and HARP (IT). In addition, two kindergartens from each participating country took part in the project: CRA Entrevalles in La Rioja and Colegio Santa María in Madrid (Spain); IC Cesira Fiori in Fontecchio, San Demetrio ne'Vestini, Ocre and Fossa (Italy); PU Bajka in Knjaževac and PU Guliver in Belgrade (Serbia); as well as Kirstin päiväkoti in Espoo and Metsäkallion päiväkoti in Vaasa (Finland). The project brought together cultural heritage experts, educators and kindergartens to explore how creative digital pedagogy and transmedia storytelling can be integrated into heritage education for young children.

Cultural heritage offers a rich and versatile educational resource that can support creativity, identity formation, cultural understanding and multidisciplinary learning from an early age. In Early Childhood Education and Care (ECEC), heritage education offers meaningful opportunities for young children to explore their immediate environments, develop emotional connections to place, and engage with culture through play, imagination, and multisensory experiences.
However, while cultural heritage is often implicitly present in the daily life of kindergartens — through traditions, stories, local environments, play, and everyday routines — educators do not always recognise that they are engaging in cultural heritage education, nor fully acknowledge their role as heritage educators. At the same time, while digital technologies offer powerful opportunities for creativity, participation and communication, and ECEC professionals are increasingly expected to adopt digital tools and innovative pedagogical approaches into their everyday practice, many educators struggle or lack the skills to find meaningful and creative ways to use technology with young children.

There is a growing need for pedagogical approaches that integrate cultural heritage, creativity and digital tools in ways that meaningfully connect young children to their cultural heritage, support their engagement, creative expression and emerging digital competences, as well as empower them as active learners and creators. CREATECH addressed these challenges by making cultural heritage visible in ECEC and by equipping educators with concrete pedagogical methods to recognise, communicate, and develop cultural heritage education through creative, child-centred and technology-supported methods.

The pedagogical foundation of CREATECH was the Transmedia Heritage Education (THE) Model, originally developed in earlier European projects by the project partners and adapted during CREATECH specifically for ECEC contexts. The model integrates three interconnected phases —

sensory exploration, digital creations, and transmedia heritage storytelling — allowing children to engage with cultural heritage through multiple modes of expression and media, while educators act as facilitators and co-explorers rather than instructors.

THE Model was tested in ECEC context in 2024-2025, when the participating kindergartens carried out creative projects where children explored cultural heritage and their local cultural surroundings through their senses and imagined the places as sources of stories connecting the past, present, and future. Cultural heritage was approached as something children can experience, interpret, and actively create, beginning from the familiar and local — places, objects, stories, and everyday environments meaningful to children — and gradually expanding to include shared community heritage and intergenerational perspectives.

The project was grounded in an understanding of cultural heritage as a living and evolving process in which children actively participate. Supported by their educators, children created their own immersive 360° digital environments to share their heritage stories through multiple forms of creative expression, including music, video, photography, visual arts, and drama. These stories were brought together in a shared online exhibition, showcasing a vibrant, child-led view of cultural heritage and demonstrating how even young learners can be powerful storytellers, cultural interpreters and creative producers. Educators acted as facilitators and co-explorers, gradually stepping back to allow children to take ownership of the creative process.
Project activities were flexible in duration and structure. Some kindergartens integrated CREATECH throughout the entire school year, embedding heritage exploration into daily routines and thematic work, while others implemented shorter, more intensive projects lasting two to three months. In all cases, activities were organised in small groups to support inclusion, peer interaction, and children's diverse interests and abilities. Intergenerational storytelling and collaboration with families and local communities played a central role, strengthening connections between children, educators, and their cultural environments.

1.2. Why adapt the Transmedia Heritage Education (THE) Model to ECEC

There are multiple aspects of the THE Model that made it a solid platform for further development of transmedia heritage education methodology and adapting it for the application in ECEC. These aspects can be found in the very reasons why this approach was developed in heritage education projects preceeding CREATECH.

Transmedia heritage education approach stems from the experiences of Heritage Hubs project (2018-2020), which was awarded the European Heritage Award/Europa Nostra award in the Education, Training and Awareness-raising category in 2021. Especially appreciative of the educational approach in the project, the jury stated: "Heritage Hubs has provided a strong methodology on heritage education, implemented by many schools. Capacity building has been

provided for the programme's partners and many materials have been created, also in a digital format, to help aid creative interaction with the wider community. This includes a combination of virtual and real-life experiences of heritage with transmedia storytelling and multisensory activities. The educational approach is based on the concept of learning from heritage, with participants exchanging their own heritage with other participants, learning through other cultures and the exchange of experiences." The essence of this approach lies in experiencing heritage in its social context and then interpreting and sharing it through a variety of creative formats, both digitally and in-person. Transmedia storytelling was found to be a creative concept that meets the project's pedagogical needs based on peer-learning from heritage through interpretation and sharing. Heritage is multifaceted in essence and can be meaningfully interpreted only through a range of different media, thus providing a rich blended learning opportunity at the same time. On the other hand, storytelling is the oldest form of social learning and in combination with transmedia concept, offers a promising pedagogical option for heritage education – one that reflects all the crucial aspects of contemporary situated learning – environmental, social and cultural.

The further conceptualization of the transmedia heritage education approach focused on multisensory exploration and interpretation of heritage through transmedia storytelling based on these multisensory experiences, also dubbed 'transmedia heritelling'. Transmedia Heritage Education (THE) Model was, thus, conceptualized as a theoretical background for the transmedia heritage education methodology, first applied in the Future Narratives project (2022-2023).
While both Heritage Hubs and Future Narratives projects' experiences relied on the involvement of school-age children and their teachers, the application of transmedia heritage education methodology in ECEC-related projects such as CREATECH entails careful consideration, having in mind the specificities of pre-school age learning and kindergarten context. THE Model was applied in its original form in CREATECH, both in teacher training and pedagogical field projects with kindergarten groups, accompanied by an elaborated data collection approach, so that all the nuances of its applicability in early childhood education are fully captured.

1.3. Research objectives and key questions

The research component of the CREATECH project was designed to accompany, document, and critically reflect on the development and implementation of the Transmedia Heritage Education (THE) Model in Early Childhood Education and Care (ECEC). While the project itself aimed to develop pedagogical innovation and practical outcomes, the research focused on understanding how the model was implemented across diverse contexts, under what conditions, and with what perceived effects from the perspectives of educators and project staff.

In line with the project's overarching goals, the research adopted a practice-oriented and reflective approach. It did not seek to measure learning outcomes experimentally, but rather to

generate evidence-informed insights into implementation processes, professional learning, contextual challenges, and the added value of integrating cultural heritage and digital technologies in ECEC settings.

Drawing on data from national curricula reviews, questionnaires addressed to project staff, tutors, and kindergarten and preschool teachers, as well as focus group interviews with the teachers, the research pursued the following objectives:

- to examine how the THE Model was implemented in different national, institutional, and pedagogical contexts;
- to identify conditions that enabled or constrained the effective implementation of heritage- and technology-based activities in ECEC;
- to explore educators' perceived professional learning, including changes in confidence, understanding, and pedagogical practices related to cultural heritage and digital tools;
- to document educators' perceptions of children's engagement, creativity, cultural awareness, and participation within THE Model activities;
- to assess the perceived added value of combining cultural heritage, creativity, and digital technologies for transversal learning in early childhood education.

Based on these objectives, the research was guided by the following key questions:

1. How was the THE Model implemented across different ECEC contexts within the CREATECH partnership?
2. What institutional, pedagogical, and contextual conditions supported or hindered its implementation?
3. What challenges emerged during implementation, and how were these addressed by educators and project staff?
4. How did educators perceive the impact of the project on their professional confidence, competencies, and pedagogical approaches?
5. How did educators perceive children's engagement, creativity, cultural awareness, and agency within THE Model activities?
6. What added value did the integration of cultural heritage and digital technologies bring to transversal learning in ECEC, as perceived by educators?

2. Project Context

2.1. Goals and aims of CREATECH

The overall goal of CREATECH was to strengthen cultural heritage education in Early Childhood Education and Care by developing and testing an innovative, child-centred pedagogical model that integrates heritage education, creativity, storytelling, and digital technologies in ECEC.

The specific aims of the project were to:

1. Support educators in recognising cultural heritage as an integral part of everyday kindergarten practice and in understanding their role as heritage educators.
2. Enable young children to explore and interpret cultural heritage as part of their everyday environments, fostering a sense of identity, belonging, and connection to local culture through play, imagination, and experiential learning.
3. Develop and adapt the Transmedia Heritage Education (THE) Model for ECEC contexts, combining sensory exploration, creative arts, and digital media into transmedia storytelling processes suitable for ECEC settings.
4. Empower children as active co-creators of culture by encouraging them to explore, interpret, and express cultural heritage through multiple modes of artistic and digital expression.
5. To support the development of personal, social, cultural, digital, literacy, and citizenship competences in alignment with the European Union Key Competences for Lifelong Learning, through integrated, playful, and creative learning experiences
6. Provide educators with practical tools, methods, and confidence to use technology creatively and meaningfully in heritage-related learning, and to integrate cultural heritage and creative digital technologies into everyday teaching in inclusive, flexible, and age-appropriate ways.
7. To strengthen connections between children, families, elders, and local communities through storytelling and shared heritage experiences, reinforcing cultural heritage as a living and collective process.

2.2. Expected outcomes and project results

Key expected outcomes and results included:

- Increased awareness among educators of cultural heritage education in ECEC and enhanced capacity to integrate it intentionally into daily practice.
- Improved educator competence in using digital tools creatively and age-appropriately, particularly in storytelling, audio-visual production, and immersive media.
- Strengthened child agency, creativity, and participation, with children actively shaping heritage narratives based on their own experiences and cultural surroundings.
- The creation of transmedia heritage stories and 360° digital exhibitions that reflect children's perspectives on local cultural heritage.
- The development and publication of the CREATECH Guidebook, offering adaptable activities, methodologies, and case studies for educators across Europe.
- Strengthened connections between kindergartens, families, and local communities through intergenerational storytelling and shared heritage experiences.

2.3. Intercultural and interdisciplinary character of the project consortium

International collaboration was a central element of CREATECH, bringing together complementary expertise in cultural heritage education, digital pedagogy, teacher training, and creative production.

Each partner organisation contributed distinct strengths to the project and transnational collaboration enabled the exchange of practices across different national ECEC contexts, while respecting local curricula, traditions, and educational cultures.

Partner organisations worked closely with participating kindergartens to design, implement, and support project activities, offering both on-site and remote guidance. This collaborative approach ensured that THE Model was tested in diverse settings and refined based on real-world practice.

Through transnational cooperation, CREATECH fostered a shared European perspective on heritage education in ECEC, while highlighting the value of local heritage, child-led creativity, and inclusive, culturally sustainable education.

3. Research Design and Methodology

3.1. Research Design

The project adopted a mixed-methods research design, combining desk-based analysis with primary qualitative and quantitative data collection to capture both contextual conditions and stakeholder experiences across different levels of implementation.

At the contextual level, a review of national curricula and relevant legislative frameworks in the partner countries was conducted to situate the project within existing Early Childhood Education and Care (ECEC) systems and policy environments.

Primary data were collected through questionnaires administered to project staff, tutors, and participating kindergarten and preschool teachers. These instruments primarily supported evaluation objectives through structured questions, while selected open-ended responses provided additional insights into perceived challenges, opportunities, and implementation dynamics.

Qualitative data were further generated through focus group interviews with kindergarten and preschool teachers, facilitated by a member of the research team and conducted after the completion of the pedagogical projects. Focus groups were organised flexibly, either at national level (up to four participants) or at institutional level (two participants).

By integrating multiple data sources, the research design enabled triangulation of findings, supporting a balanced assessment of project processes, outcomes, and contextual factors influencing implementation.

3.2. Data sources

3.2.1. National Curricula Review in CREATECH Partner Countries

General Questionnaire Information	
Title:	National Curricula Review in CREATECH Partner Countries
Working Title:	National Curricula Review | All Partner Countries: Summary of Findings from the Data Validation & Collaboration Forms (Baseline Survey)
Project Phase (Timing):	January 2024 - July 2025
Documents Reviewed:	• Finland: National Core Curriculum for Early Childhood Education and Care • Italy: National Guidelines for the Curriculum of Early Childhood Education and the First Cycle of Instruction • Serbia: Foundations of the Preschool Education and Upbringing Program - Conception of the Program Basis • Spain: Royal Decree 95/2022, Establishing the Organisation and Minimum Curriculum for Early Childhood Education
Purpose / Rationale:	
Research-focused:	Map and analyse national ECEC frameworks, including legislative structures, curriculum content, pedagogical approaches, teacher qualifications, organisational conditions, conceptualisations of children and learning, and assessment practices. Provide a comparative, policy-contextual baseline to inform adaptation and implementation of the Transmedia Heritage Education (THE) Model in ECEC settings.
Evaluation-focused:	Establish contextual understanding of national policies and curricula to interpret project implementation outcomes and identify alignment or gaps between CREATECH approaches and existing ECEC frameworks.

Methodology / Design:

• Structured document-based review conducted using a specifically developed CREATECH questionnaire.
• Documents analysed in original languages (Finnish, Italian, Serbian, Spanish); summaries and questionnaires completed primarily in English.
• Two-step validation process:
  ○ Initial data collection, compilation, and synthesis by appointed research staff.
  ○ Expert validation by appointed research staff from each partner country to ensure accuracy, completeness, and alignment with national frameworks.
• Qualitative, policy-contextualised comparative design enabling cross-country comparisons while respecting national specificities.
• Purposive sampling: one validated review per partner country.

Item Types / Data Collected:
• Structured questionnaire responses capturing policy dimensions, curriculum content, pedagogical approaches, teacher qualifications, organisational conditions, child-teacher ratios, conceptualisations of children, and assessment practices. • Qualitative annotations and comparative notes to contextualise cross-country differences.
Content / Key Thematic Areas:
• Legislative and regulatory structures for ECEC • National curriculum content and learning objectives • Pedagogical approaches and educational strategies • Teacher qualifications, professional development, and training standards • Organisational conditions including child-teacher ratios • Conceptualisations of children and learning • Assessment and evaluation practices
Scales and Measurement:
• Qualitative, descriptive mapping • Structured coding of curriculum and policy dimensions • Cross-country comparison through thematic and categorical analysis

Research-focused items:	• Mapping and coding of policy and curriculum dimensions

	• Cross-country comparison and analysis of national frameworks • Identification of opportunities and constraints for THE Model adaptation
Evaluation-focused items:	• Baseline understanding of national frameworks to contextualise teacher practices and project implementation outcomes • Assessment of alignment between CREATECH methods and existing policies and curricula
Application of Data:	
Research:	Provide policy-contextual baseline for comparative analysis and design of the THE Model in ECEC; inform interpretation of teacher and child data collected later.
Evaluation:	Support evaluation of project implementation by situating findings within national policy contexts; identify potential barriers or enablers for uptake of CREATECH approaches.

3.2.2. Questionnaires with CREATECH Project Staff and Tutors

1. Pre-Project Questionnaire for CREATECH Project Staff

** The term "Pre-Project" refers to the pre-project phase of activities and serves as a baseline reference point for longitudinal analysis within the project framework. It does not indicate that the project had not yet officially started.*

Data Source Information	
Title:	Pre-Project Questionnaire for CREATECH Project Staff
Working Title:	Internal Pre-training Questionnaire on Experience and Competencies (Belgrade, April)
Number of Respondents:	15
Project Phase (Timing):	Pre-Project phase, prior to the CREATECH activities in Belgrade (April)
Purpose / Rationale:	
Evaluation-focused:	Assess project staff's prior experience in collaborative projects,

	curriculum or program development, community engagement, and relevant competencies in digital tools, cultural heritage, and transmedia storytelling. Identify training or support needs before project activities begin.
Methodology / Design:	
Mode of administration:	Internal self-administered questionnaire (online), completed prior to project activities.
Respondents:	All project staff involved in CREATECH.
Item types:	• Binary (Yes/No) • Multiple choice (single-select) • Multiple choice (multi-select) • Open-ended • Likert scale
Content:	

The questionnaire covered the following thematic areas:
• Professional role within the CREATECH project
• Previous experience in transnational collaboration
• Experience in curriculum development and professional education
• Community engagement with diverse groups
• Experience in Early Childhood Education and Care (ECEC)
• Confidence in applying cultural heritage education and digital tools in ECEC contexts
• Competencies relevant to CREATECH:
  ○ Cultural heritage (educational use, historical research, preservation, interpretation, exhibition creation)
  ○ Creative use of technology (musical/audio production, digital music creation, soundscapes, visual/digital production, 360-degree imagery)
  ○ Transmedia storytelling (story development, media literacy, narrative design)	

Scales and Measurement:	
Multiple measurement approaches were used: • Binary scales: Yes / No (experience-based questions) • Confidence scale (5-point Likert-type): ○ 1 - Not confident at all	

<table>
<tr><td colspan="2">

2 - Slightly confident
3 - Moderately confident
4 - Confident
5 - Very confident

Competency self-assessment scale (5-point Likert-type):

1 - Novice
2 - Beginner
3 - Intermediate
4 - Advanced
5 - Expert

Open-ended items were included to allow respondents to elaborate on prior experience and professional background.

</td></tr>
<tr><td>Evaluation-focused items:</td><td>Yes/No questions (experience in collaboration, curriculum development, ECEC)
Multiple-choice questions (fields relevant to CREATECH, target groups for programs)
Open-ended questions (details of experience, community engagement, ECEC work)
Self-assessment scales (confidence and competency levels across cultural heritage, creative technology, and transmedia storytelling)</td></tr>
<tr><td colspan="2">Application of Data:</td></tr>
<tr><td>Evaluation:</td><td>To inform internal project planning by identifying areas of strength and support needs relevant to the design and implementation of CREATECH training and activities. Included in longitudinal analysis.</td></tr>
</table>

2. Mid-Project Questionnaire for CREATECH Project Staff

Data Source Information	
Title:	Mid-Project Questionnaire for CREATECH Project Staff
Working Title:	Internal Mid-project Questionnaire on Confidence and Competencies (Fontecchio, September)

Number of Respondents:	12
Project Phase (Timing):	Mid-Project phase
Purpose / Rationale:	
Evaluation-focused:	Assess project staff's relevant competencies in digital tools, cultural heritage, and transmedia storytelling.
Methodology / Design:	
Mode of administration:	Internal self-administered questionnaire (online), completed after the Teacher Training in Fontecchio.
Respondents:	All project staff involved in CREATECH.
Item types:	• Likert scale
Content:	

The questionnaire covered the following thematic areas:

- Confidence in applying cultural heritage education and digital tools in ECEC contexts
- Competencies relevant to CREATECH:
  - Cultural heritage (educational use, historical research, preservation, interpretation, exhibition creation)
  - Creative use of technology (musical/audio production, digital music creation, soundscapes, visual/digital production, 360-degree imagery)
  - Transmedia storytelling (story development, media literacy, narrative design)

Scales and Measurement:

Multiple measurement approaches were used:

- Confidence scale (5-point Likert-type):
  - 1 - Not confident at all
  - 2 - Slightly confident
  - 3 - Moderately confident
  - 4 - Confident
  - 5 - Very confident

- Competency self-assessment scale (5-point Likert-type):

○ 1 - Novice ○ 2 - Beginner ○ 3 - Intermediate ○ 4 - Advanced ○ 5 - Expert	
Evaluation-focused items:	• Self-assessment scales (confidence and competency levels across cultural heritage, creative technology, and transmedia storytelling)
Application of Data:	
Evaluation:	To inform internal project planning by identifying areas of strength and support needs relevant to the design and implementation of CREATECH training and activities. Included in longitudinal analysis.

3. Post-Project Questionnaire for CREATECH Project Staff and Tutors

** The term "Post-Project" refers to the concluding phase of project activities and serves as a followup reference point for longitudinal analysis within the project framework. It does not imply that project activities had fully ceased at the time of data collection.*

Data Source Information	
Title:	Post-Project Questionnaire for CREATECH Project Staff and Tutors
Working Title:	Final Internal Questionnaire on Confidence, Competencies and Experience | CREATECH Project Staff
Number of Respondents:	12
Project Phase (Timing):	Post-Project phase
Purpose / Rationale:	
Research-focused:	Systematically document structured observations of teachers and children during the pedagogical projects to identify patterns in engagement, competencies, and application of cultural heritage and digital methods.
Evaluation-focused:	Assess project staff confidence, competencies, experiences,

	reflections, and perceived challenges; evaluate the implementation of project methods and identify areas for potential future training or improvement.
Methodology / Design:	
Mode of administration:	Internal self-administered questionnaire (online), completed after the the pedagogical projects activities.
Respondents:	All project staff, including sections for tutors (or tutor-training attendees)
Item types:	• Binary (Yes/No) • Multiple choice (single-select) • Open-ended • Likert scale
Content:	
• Staff self-assessment of confidence in ECEC, digital tools, and project-related competencies • Staff ratings of competencies across cultural heritage, creative technology, and transmedia storytelling • Tutors self-assessment of confidence in using digital tools and methods • Staff observations of teacher performance, independence, and pedagogical implementation • Staff observations of children's engagement, creativity, digital skills, participation, curiosity, social interaction, confidence, and learning outcomes • Reflections on project implementation, challenges, lessons learned, and improvement suggestions	
Scales and Measurement:	

Multiple measurement approaches were used:
• Confidence scale (5-point Likert-type):
  ○ 1 - Not confident at all
  ○ 2 - Slightly confident
  ○ 3 - Moderately confident
  ○ 4 - Confident
  ○ 5 - Very confident
 	
• Competency self-assessment scale (5-point Likert-type):	

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1 - Novice
2 - Beginner
3 - Intermediate
4 - Advanced
5 - Expert

Observation Statements Scale (5-point Likert-type):

1 - Strongly Disagree: You do not agree at all; the statement does not reflect your observations.
2 - Disagree: You mostly disagree; the statement reflects your observations only partially.
3 - Neutral: You neither agree nor disagree; the statement reflects your observations to some extent.
4 - Agree: You mostly agree; the statement generally reflects your observations.
5 - Strongly Agree: You fully agree; the statement accurately reflects your observations.

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<tr><td>Research-focused items:</td><td>

Teacher observation ratings (Sections 4.1-4.10) of independence, competencies, creative and cultural heritage practices, digital tool usage, and transmedia storytelling.
Children observation ratings (Sections 5.1-5.10) of engagement, participation, curiosity, creativity, social interaction, digital skills, and learning outcomes.
Open-ended examples detailing observed practices, variations between schools or countries, and notable patterns (Sections 4.1b, 4.3b, 4.5b, 4.8b, 4.10b, 5.2b, 5.4b, 5.8b, 5.10b).

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<tr><td>Evaluation-focused items:</td><td>

Staff self-assessment of confidence in ECEC, digital tools, and competencies (Sections 1-3)
Tutor-specific confidence ratings for digital tools and methods used during pedagogical projects (Sections 3.1-3.6)
Open-ended reflections on project experience, challenges, lessons learned, suggestions for improvement, and personal outcomes (Section 6)

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<tr><td colspan="2">Application of Data:</td></tr>
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Research:	Identify observable trends in teacher and child engagement and performance, providing structured insight for future studies or longitudinal analysis of pedagogical methods.
Evaluation:	Inform internal review of CREATECH project implementation, identify staff and teacher training needs, assess effectiveness of digital and heritage-based methods, and guide future improvements in project design and support materials.

4. Post-Tutor Training Questionnaire for Tutors

Data Source Information	
Title:	Post-Tutor Training Questionnaire for Tutors
Working Title:	Internal Post-Tutor Training Questionnaire - Evaluation (Belgrade, April)
Number of Respondents:	7
Project Phase (Timing):	Post-Tutor Training
Purpose / Rationale:	
Evaluation-focused:	Assess effectiveness of Tutor Training, identify areas where trainees need additional support, and track perceived improvements in knowledge, skills, and confidence in using digital tools.
Methodology / Design:	
Mode of administration:	Internal self-administered questionnaire (online), completed after the the pedagogical projects activities.
Respondents:	Project staff (Tutors) participants in the Belgrade Tutor Training (April 2024).
Item types:	• Open-ended • Likert scale
Content:	
• Confidence in applying music composition, digital sound recording, and	

production techniques (GarageBand) • Confidence in using 360-degree photography (INSTA 360 X2) and video editing (iMovie) • Confidence in creating immersive 360-degree experiences integrating multiple media • Overall readiness to implement CREATECH activities in nursery settings using digital tools • Open-ended reflections on additional support required and general feedback
Scales and Measurement:
• Confidence scale (5-point Likert-type): ○ 1 - Not confident at all ○ 2 - Slightly confident ○ 3 - Moderately confident ○ 4 - Confident ○ 5 - Very confident

Evaluation-focused items:	• Overall self-assessment of confidence post-training (Items 1-4) • Open-ended responses for trainee feedback, suggestions, and perceived support needs (Item 5)
Application of Data:	
Evaluation:	Evaluate the effectiveness of the Belgrade Tutor Training, detect gaps in skill acquisition, and provide actionable feedback for training improvement and project implementation in ECEC settings.

3.2.3. Kindergarten and Preschool Teacher Questionnaires

1. Cultural Heritage (CH) Workshops Questionnaires

1.1 Pre-Cultural Heritage Workshop Questionnaire for Kindergarten and Preschool Teachers

Data Source Information	
Title:	Pre-Cultural Heritage Workshop Questionnaire for Kindergarten and Preschool Teachers
Working Title:	Understanding and Familiarity with Cultural Heritage | Questionnaire for Kindergarten and Preschool Teachers

Number of Respondents:	28
Project Phase (Timing):	Pre-CH Workshop
Purpose / Rationale:	
Research-focused:	Assess teachers' baseline understanding and familiarity with cultural heritage practices, and their expectations for involvement in CREATECH activities. This informed training design and adaptation of project activities to ECEC contexts.
Evaluation-focused:	Evaluation-focused: Identify training needs and anticipate challenges for teacher engagement during the workshop.
Methodology / Design:	
Mode of administration:	Self-administered online or paper questionnaire completed before the CH workshop.
Respondents:	Kindergarten and preschool teachers attending the CH workshop.
Item types:	• Open-ended • Likert scale
Content:	
• General understanding of cultural heritage. • Familiarity with cultural heritage practices: preservation/conservation, heritage education, interpretation, and exhibition creation. • Expectations for participation in CREATECH.	
Scales and Measurement:	

• Familiarity rated on a 6-point Likert-type scale:
  ○ 0 - Not familiar: You have no experience or knowledge about this practice.
  ○ 1 - A little familiar: You've heard about it but haven't explored it much.
  ○ 2 - Somewhat familiar: You have a basic understanding but need more information to feel confident.
  ○ 3 - Fairly familiar: You understand it moderately well and could explain it.
  ○ 4 - Very familiar: You have a strong grasp and can confidently discuss and practice it.	

○ 5 - Fully familiar: You're highly knowledgeable and experienced, able to practice and teach others about it.	
Research-focused items:	All familiarity ratings and open-ended definitions.
Evaluation-focused items:	Open-ended expectations.
Application of Data:	
Research:	Establish baseline competencies in heritage education; inform adaptation of the project model for ECEC.
Evaluation:	Identify areas where teachers require additional support during workshops.

1.2 Post-Cultural Heritage Workshop Questionnaire for Kindergarten and Preschool Teachers

Data Source Information	
Working Title:	Post-Cultural Heritage Workshop Questionnaire for Kindergarten and Preschool Teachers
Title:	Mapping the Socially and Culturally Sustainable Education | Questionnaire for Kindergarten and Preschool Teachers
Number of Respondents:	35
Project Phase (Timing):	Post-CH Workshop
Purpose / Rationale:	
Research-focused:	Capture changes in practices and perceptions of socially and culturally sustainable education following the workshop.
Evaluation-focused:	Assess teachers' satisfaction with workshop content, organization, and usefulness.
Methodology / Design:	
Mode of administration:	Self-administered online or paper questionnaire completed immediately after the CH workshop.

Respondents:	Kindergarten and preschool teachers attending the CH workshop.
Item types:	• Open-ended • Likert scale
Content:	
• Frequency of activities and practices related to locality (e.g., using local cultural sites, inviting parents/community members). • Frequency of diversity-focused practices (e.g., inclusive stories, culturally diverse collaborators). • Feedback on workshop organization, interest, usefulness, and additional support needs.	
Scales and Measurement:	

• Frequency scale (4 points):
  ○ 0 - Never
  ○ 1 - Rarely
  ○ 2 - Sometimes
  ○ 3 - Often
 	
• Training satisfaction, organization, interest, and usefulness were assessed using 5-point Likert scales (e.g. 1 – Not satisfied to 5 – Very satisfied).	

Research-focused items:	Frequency ratings of educational practices.
Evaluation-focused items:	Workshop feedback (quality, organization, interest, usefulness).
Application of Data:	
Research:	Map implementation of socially and culturally sustainable practices.
Evaluation:	Assess workshop effectiveness and identify areas requiring follow-up support.

2. Teacher Training Questionnaires

2.1 Pre-Teacher Training Questionnaire for Kindergarten and Preschool Teachers

Data Source Information	
Working Title:	Pre-Teacher Training Questionnaire for Kindergarten and Preschool Teachers
Title:	Pre-training Questionnaire on Experience and Competencies (Fontecchio, September 2024) | Questionnaire for Kindergarten and Preschool Teachers
Number of Respondents:	13
Project Phase (Timing):	Pre-Teacher Training
Purpose / Rationale:	
Research-focused:	Document teachers' educational backgrounds, prior experience with collaborative and community practices, and their familiarity with competencies central to CREATECH, including digital tools and transmedia storytelling.
Evaluation-focused:	Identify training needs and inform adaptation of training content.
Methodology / Design:	
Mode of administration:	Self-administered online questionnaire completed before the Fontecchio training (September 2024).
Respondents:	Teachers attending the Fontecchio training
Item types:	• Multiple choice (multi-select) • Open-ended • Likert scale
Content:	
• Previous experience relevant to CREATECH (educational background and courses), transnational collaboration and community engagement. • Familiarity with competencies relevant to CREATECH: creative use of technology (creating music with digital tools, creating soundscapes and digital sound recording, video production, 360° imagery), transmedia storytelling (story	

development, overall media competence, overall digital competence and transmedia approach).
Scales and Measurement:
• Familiarity rated on a 6-point Likert-type scale: ○ 0 - Not familiar: You have no experience or knowledge about this practice. ○ 1 - A little familiar: You've heard about it but haven't explored it much. ○ 2 - Somewhat familiar: You have a basic understanding but need more information to feel confident. ○ 3 - Fairly familiar: You understand it moderately well and could explain it. ○ 4 - Very familiar: You have a strong grasp and can confidently discuss and practice it. ○ 5 - Fully familiar: You're highly knowledgeable and experienced, able to practice and teach others about it.

Research-focused items:	Competency and experience ratings.
Evaluation-focused items:	Open-ended questions about prior experience and needs.
Application of Data:	
Research:	Establish baseline digital, creative, and heritage-related competencies.
Evaluation:	Inform training design and identify areas for targeted support.

2.2 Post-Teacher Training Questionnaire for Kindergarten and Preschool Teachers

Data Source Information	
Title:	Post-Teacher Training Questionnaire for Kindergarten and Preschool Teachers
Working Title:	Post-training Questionnaire (Fontecchio, September 2024) | Questionnaire for Kindergarten and Preschool Teachers
Number of Respondents:	16
Project Phase (Timing):	Post-Teacher Training

Purpose / Rationale:	
Research-focused:	Document teachers' self-reported confidence in applying skills acquired during the Fontecchio training, particularly in relation to digital tools, immersive media, and transmedia storytelling in ECEC contexts.
Evaluation-focused:	Assess teachers' satisfaction with the training, perceived usefulness, and areas requiring further support.
Methodology / Design:	
Mode of administration:	Self-administered online questionnaire completed immediately after the training.
Respondents:	Teachers attending the Fontecchio training.
Item types:	• Open-ended • Likert scale
Content:	
• Self-assessed confidence in applying newly acquired skills, including initiating CREATECH-related projects, using digital tools, creating immersive 360-degree and transmedia content, adapting activities to kindergarten groups, and guiding children in digital content creation. • Feedback on the training, including overall quality, organization, interest, usefulness, skills acquired, challenges encountered, and additional support needs.	
Scales and Measurement:	

• Confidence scale (6 points, 0–5)
  ○ 0 - Not confident at all: You feel completely unprepared or unable to perform this activity.
  ○ 1 - Very little confidence: You feel very uncertain or lack confidence in this activity.
  ○ 2 - Slightly confident: You have some doubts and feel only slightly confident.
  ○ 3 - Somewhat confident: You feel moderately confident but have room for improvement.
  ○ 4 - Confident: You feel assured and capable of performing this activity.	

○ 5 - Very confident: You feel fully assured and highly capable of performing this activity. ● Training satisfaction, organization, interest, and usefulness were assessed using 5-point Likert scales (e.g. 1 – Not satisfied to 5 – Very satisfied).

Research-focused items:	Confidence ratings for longitudinal analysis.
Evaluation-focused items:	Satisfaction, organization, usefulness, additional support needs.
Application of Data:	
Research:	Track changes in teacher confidence and skill development over time.
Evaluation:	Assess effectiveness of training and identify follow-up support needs.

3. Post-Project Questionnaire for Kindergarten and Preschool Teachers

** The term "Post-Project" refers to the concluding phase of project activities and serves as a followup reference point for longitudinal analysis within the project framework. It does not imply that project activities had fully ceased at the time of data collection.*

Data Source Information	
Title:	Post-Project Questionnaire for Kindergarten and Preschool Teachers
Working Title:	Post-project Questionnaire | Questionnaire for Kindergarten and Preschool Teachers
Number of Respondents:	13
Project Phase (Timing):	Post-Project Phase
Purpose / Rationale:	
Research-focused:	Document teachers' self-reported confidence in applying skills and practices developed throughout their participation in the CREATECH project, with a focus on digital tools, immersive

	media, transmedia storytelling, and the pedagogical use of cultural heritage in ECEC.
Evaluation-focused:	Assess overall satisfaction with the CREATECH project, perceived usefulness of activities and tools, and teachers' reflections on challenges, support needs, and applicability of the approach.
Methodology / Design:	
Mode of administration:	Self-administered online questionnaire completed after the conclusion of all CREATECH pedagogical project activities.
Respondents:	Kindergarten and preschool teachers who participated in the CREATECH project.
Item types:	• Binary (Yes/No) • Open-ended • Likert scale
Content:	
Self-assessed confidence in applying CREATECH-related skills, including initiating projects with kindergarten groups, using digital tools, creating immersive 360-degree and transmedia content, adapting activities to group needs, and guiding children in digital content creation.	
Overall feedback on the CREATECH project, including quality, organization, relevance, usefulness of skills and tools, perceived challenges in implementation, additional training needs, and willingness to recommend the approach to others.	
Scales and Measurement:	

• Confidence scale (6 points, 0–5)
  ○ 0 - Not confident at all: You feel completely unprepared or unable to perform this activity.
  ○ 1 - Very little confidence: You feel very uncertain or lack confidence in this activity.
  ○ 2 - Slightly confident: You have some doubts and feel only slightly confident.
  ○ 3 - Somewhat confident: You feel moderately confident but have room for improvement.	

○ 4 - Confident: You feel assured and capable of performing this activity. ○ 5 - Very confident: You feel fully assured and highly capable of performing this activity. • Training satisfaction, organization, interest, and usefulness were assessed using 5-point Likert scales (e.g. 1 – Not satisfied to 5 – Very satisfied). • A binary Yes/No item was used to capture teachers' willingness to recommend the CREATECH approach.

Research-focused items:	Confidence ratings related to applying digital, immersive, and transmedia practices, as well as adapting CREATECH methods to ECEC settings.
Evaluation-focused items:	Satisfaction ratings, recommendation item, and open-ended reflections on expectations, challenges, usefulness, and support needs.
Application of Data:	
Research:	Provide an overview of teachers' perceived confidence in applying CREATECH-related competencies at the end of the project and for longitudinal analysis.
Evaluation:	Assess overall project effectiveness, identify strengths and limitations of the approach, and inform recommendations for future adaptations or scaling.

3.2.4. Focus Group Interviews with Kindergarten and Preschool Teachers

Data Source Information	
Title:	Focus Group Interviews with Kindergarten and Preschool Teachers
Working Title:	Focus Groups with Kindergarten and Preschool Teachers
Number of Respondents:	16
Project Phase (Timing):	After the completion of the pedagogical project activities
Purpose / Rationale:	

Research-focused:	Capture qualitative insights on teachers' professional development, pedagogical skills, and perceptions of children's learning experiences, including creativity, digital tool use, and cultural heritage engagement. Focus groups allow understanding of challenges, opportunities, and contextual factors in implementing CREATECH methods.
Evaluation-focused:	Assess how effectively the CREATECH training and pedagogical activities were implemented in practice, teachers' confidence and skills development, and the observed impact on children's participation, creativity, and engagement.

Methodology / Design:

- Semi-structured focus group interviews conducted in the national language of each partner country.
- Focus groups were inducted by a representative of the CREATECH research team.
- Groups consisted of 2-4 teachers, organized either at the kindergarten level (2 participants) or national level (up to 4 participants).
- Sessions conducted after completion of the pedagogical projects.
- Session structure: 60-90 minutes, guided by a set of open-ended questions organized thematically (Professional Development, Cultural Heritage, Creativity & Digital Tools, Inclusion, Project Impact, Observations of Children).
- Warm-up questions used to build rapport and elicit general impressions.
- Prompts used to deepen responses and encourage examples from practice.
- Data captured via audio/video recordings and notes, later transcribed, translated and analyzed thematically.

Item Types / Data Collected:

- Open-ended qualitative questions
- Teacher reflections on professional growth, pedagogical practice, and project impact
- Observational reports of children's experiences, engagement, and creative outputs

Content / Key Thematic Areas:

- Teacher reflections on CREATECH experience and unexpected outcomes
- Professional development, pedagogical and cross-curricular skills
- Understanding and application of cultural heritage in ECEC

• Use of digital tools and transmedia storytelling • Inclusion, child-led learning, and observation of children's participation • Teacher perceptions of children's creativity, confidence, social learning, and cultural awareness • Observations of digital skills and children's agency in creative processes • Advice and recommendations for future projects	
Research-focused items:	• Teacher reflections on professional development and pedagogical skills • Observations of children's agency, creativity, participation, and social learning • Teachers' insights into cultural heritage and local context learning for children
Evaluation-focused items:	• Teacher feedback on effectiveness and usability of CREATECH tools and methods • Perceived impact on children's engagement, confidence, and skill development • Recommendations for continuation or adaptation of methods in practice
Application of Data:	
Research:	Identify emergent themes regarding teacher learning, pedagogical strategies, and child outcomes to inform future studies on creative and heritage-based digital education in ECEC.
Evaluation:	Assess the effectiveness and practical implementation of CREATECH approaches, identify challenges and training needs, and provide guidance for project improvement and scalability.

3.2.5. Discarded and Adapted Data Collection Tools

During project implementation, several planned data collection tools were piloted but ultimately discontinued due to feasibility constraints or methodological limitations identified during field implementation. Their discontinuation was addressed through adaptive research and evaluation measures, ensuring that key indicators were still captured and research questions were still answered through alternative instruments.

CREATECH Observation Sheet (Project Staff)

A structured observation sheet intended for use by CREATECH tutors and project staff to follow the implementation of pedagogical development projects in kindergartens was developed, but discarded due to the operational constraints of staff roles, overlapping responsibilities during the implementation phase, and limited capacity for systematic observation alongside facilitation duties.

To address the resulting data gap and ensure coverage of essential process- and implementation-related indicators, selected observation-related items were integrated into the "Final Internal Questionnaire on Confidence, Competencies and Experience" administered to all project staff. This adaptation allowed reflective, experience-based insights to be captured in a more feasible and consolidated format.

CREATECH Observation Sheet (Teachers)

A parallel observation sheet for use by kindergarten and preschool teachers was also designed for the pedagogical projects. Two completed observation sheets were received, both from kindergartens in Serbia. Given the limited geographic scope and insufficient sample size for comparative analysis, the tool was considered methodologically unsuitable for inclusion in cross-country analysis and was therefore discarded as a standalone data source. As with the staff observation tool, key research questions and indicators were transferred to the Focus Group Interviews with preschool teachers and/or reformulated within the "Final Internal Questionnaire on Confidence, Competencies and Experience" administered to all project staff, ensuring continuity in data collection and alignment with the project objectives.

Children's Assessment Tool

A children's assessment tool was developed and piloted using two approaches: an initial LEGO-based method tested in Serbia and the INTO approach piloted in Finland. The pilots provided valuable insights into how assessment practices function in different educational contexts. However, implementing a shared child-focused research tool consistently across all partner countries was not feasible within the project timeframe. Therefore, the research questions and analytical dimensions originally addressed through direct child assessment were instead explored through teacher focus group interviews and through the children-focused observation section of the Final Internal Questionnaire for project staff. These tools enabled the research team to capture reflections on children's engagement, emotional responses, learning processes, and participation from an observational and pedagogically grounded perspective.

This triangulated approach ensured continuity in addressing the project's research questions while maintaining methodological coherence and ethical appropriateness within early childhood education settings.

3.3. Data analysis procedure

The data analysis employed a mixed-methods approach, integrating both qualitative and quantitative strategies in accordance with the nature of the collected data. Open-ended survey items, narrative questionnaire responses, and focus group transcripts were subjected to thematic analysis, enabling the identification of recurrent patterns, concepts, and themes concerning teachers' professional practices, experiences, and perceptions of children's engagement in transmedia heritage and creative technology activities.

Quantitative data, derived from structured survey instruments, were aggregated and analysed to depict distributions of competencies, confidence levels, and prior professional experience. Where the data permitted, longitudinal comparisons were conducted to examine changes across pre-, mid-, and post-project phases, providing insight into the evolution of competencies and self-perceived confidence. Although confidence was primarily captured through structured numerical scales, narrative reflections offered supplementary contextual understanding in select instances.

This integrated analytical framework facilitated a comprehensive evaluation of the CREATECH intervention, combining statistical trends with qualitative insights to illuminate both the measurable and experiential dimensions of pedagogical development and children's learning outcomes.

3.4. Ethical considerations

All research activities within the CREATECH project were conducted in compliance with ethical standards and research permissions obtained from the relevant authorities in each partner country. Participation was voluntary, and written informed consent was collected from all participants, including staff, teachers, and, where applicable, parents or guardians of children involved in project activities. Anonymity and confidentiality were ensured through the use of aliases, pseudonyms, and anonymized reporting of results.

Although research permissions and GDPR-compliant consent procedures were secured, some respondents did not submit their questionnaires or provided incomplete data. These gaps were documented, and complementary instruments, such as teacher focus groups and observation sections integrated into staff questionnaires, were used to address the relevant research questions and indicators. All collected data were stored securely, with access limited to authorized personnel, and were processed, retained, and reported in accordance with EU Regulation 2016/679 and applicable national data protection laws.

4. Findings

This chapter presents the key findings of the CREATECH project, focusing on the implementation and impact of the Transmedia Heritage Education (THE) Model in ECEC contexts across partner countries. Drawing on longitudinal questionnaires, focus groups, curriculum analyses, and observational data, the findings highlight both the enabling conditions and the challenges encountered during implementation, as well as the impact on teachers and children.

Section 4.1 examines the professional, institutional, and pedagogical conditions that enabled successful implementation, including staff and teacher competence, organisational alignment, sustained professional support, and child-centered orientation. Section 4.2 addresses the challenges observed across contexts and the adaptive responses developed within the project framework. Sections 4.3 and 4.4 analyse the impact on teachers' professional development and on children's creativity, cultural awareness, and agency. Finally, Section 4.5 outlines the added value of integrating cultural heritage and digital technology for transversal learning.

Together, these findings provide a comprehensive understanding of how the THE Model functions in practice and under which conditions it can be implemented effectively and sustainably.

4.1. Conditions that enable successful implementation

Successful implementation of the THE Model in the CREATECH project was enabled by a set of interrelated professional, institutional, and pedagogical conditions. Strong staff and teacher competence, growing confidence, supportive organisational structures, and alignment with child-centered ECEC principles created the foundation for translating the model into everyday practice. Continuous professional support and grounding heritage in children's lived environments further ensured that the model was implemented in a meaningful, adaptable, and sustainable way.

Project Staff Competence and Confidence

Project staff competence, confidence and professional profile functioned as decisive enabling conditions for successful implementation by providing both structural capacity and pedagogical security. Their interdisciplinary backgrounds (spanning museum education, teacher training, community facilitation and digital arts) created a strong foundation for translating the theoretical complexity of Transmedia Heritage Education into practice. Prior experience in transnational collaboration ensured readiness for multicultural teamwork, while staff with ECEC expertise grounded the model in institutional realities and age-appropriate pedagogy (see Annex Group 2).

The project cycle saw a measurable upward trend in staff capacity. General confidence in heritage education grew by 1.00, while digital tool proficiency increased by 1.30, both reaching a final

score of 4.20/5.00 (Confident). Specific technical milestones were even higher: tutors reported a final score of 4.67/5.00 (Very Confident) in creating immersive 360-degree experiences and 4.17/5.00 (Confident) for digital tool integration in nurseries.
These increases significantly strengthened their capacity to support teachers and implement the model effectively. This collective confidence helped bridge initial gaps in preschool-specific experience in some of the project staff, but who were contributing to other areas of the project through close collaboration with teachers. The collective growth in confidence and competences within the CREATECH project helped complement areas where some staff had less prior preschool-specific experience, while their strong expertise in other domains continued to contribute significantly through close collaboration with teachers (see Annex Group 12).

As competence deepened, staff shifted from trainers to mentors, a critical success condition. Teachers were empowered to lead implementation independently, supported by a reliable technical and methodological “safety net”. Staff could provide tailored guidance, adapt approaches for diverse groups, and offer support in local languages. Their research expertise also ensured continuous refinement through a develop-test-review cycle. Ultimately, their combined technological fluency and pedagogical sensitivity ensured that technology served storytelling and participation, securing the integrity of THE model in practice.

Teacher Competence and Confidence
The general profile, competencies, and growing confidence of kindergarten and preschool teachers were crucial for the successful implementation of the CREATECH project, ensuring that the THE Model was integrated into everyday ECEC practice rather than remaining theoretical. Teachers’ qualifications, ranging from vocational training to Master’s degrees in ECEC, Psychology, and Educational Research, provided a strong foundation for reflection and innovation (see Annex Group 8). Across partner countries, teachers were highly professional and child-centred, with existing skills in play-based facilitation, documentation, and cultural awareness aligning with the THE Model, which systematised and connected these practices (see Annex 1).

Their competence enabled the translation of complex transmedia concepts into age-appropriate activities. As one teacher reflected, “Before, I had a vision of monumental heritage and not heritage close to us. From nearby you can introduce the teaching of cultural heritage in early childhood education. Starting from what is around them, you can reach the children”. Guided by this insight, teachers reframed heritage from distant narratives to local, lived experiences, applied inclusive strategies for diverse learners, and facilitated open-ended, child-led projects, empowering children as active “ideators” (see Annex Group 10).

Longitudinal data revealed a significant +0.75 increase in teachers' confidence regarding the adaptation of activities for their specific groups. This brought the final average to 3.67 on a 0-5

scale, officially categorizing the participants as “Confident” in their professional autonomy. Initial hesitation with technology and unfamiliar methods was overcome through hands-on practice, enabling teachers to use iPads, GarageBand, and 360-degree cameras confidently (see Annex Group 12). Teacher ownership was key: familiar educators mediated experiences while external (project) staff acted as mentors. Combined with professional agency, peer learning, and supportive group structures, these conditions ensured high-quality, sustainable implementation of the THE Model in ECEC.

Institutional and Organisational Factors

Curriculum and regulatory analyses across Finland, Italy, Serbia, and Spain reveal structural conditions conducive to implementing transmedia heritage projects. Despite differences in governance and teacher qualification frameworks, all four systems emphasize reflective professionalism, continuous pedagogical development, and child-centered approaches, aligning with the operational requirements of the THE Model. Formative assessment practices, non-judgmental observation, and documentation-centered evaluation further provide methodological alignment for transmedia heritage learning (see Annex 1).

Focus group evidence (Annex Group 10) highlights specific organisational conditions that enabled successful implementation. Small group work, ideally with 6-8 children, was pivotal in fostering the confidence required for children to become “active meaning-makers” and “ideators.” As one teacher explained, “It was about those carefully thought-out small groups, and making sure there were kids who support each other… You really have to know the group and its dynamics first. Some kids need more time, or they want to know very clearly what’s expected of them”. The presence of a familiar adult guiding activities, alongside well-prepared instructions, created a safe and supportive environment that allowed children to engage fully and take initiative.

Access to technological tools (including iPads, 360-degree cameras, GarageBand, and iMovie) was critical to translating these devices from toys into meaningful means of creative expression. CREATECH ensured that all participating kindergartens had the necessary hardware and tutoring support, enabling teachers to implement the model without additional burden.

Conversely, systemic realities such as rigid timetables, large class sizes, and limited staffing or financial resources are common in ECEC institutions and can constrain the introduction of new approaches. These factors, while challenging, do not undermine the methodology itself. Instead, they underscore the importance of institutional flexibility, adequate resourcing, and realistic scheduling as enabling conditions. Even minimal digital tools and well-organized small groups proved sufficient for successful implementation, demonstrating that the THE Model can be adapted effectively within existing ECEC contexts.

Pedagogical Orientation and Project Design

Data sources underscore the importance of pedagogical approaches that combine digital literacy, cultural heritage engagement, and project-based learning. Teachers consistently identified hands-on, multimodal activities (such as creating rap recordings in GarageBand, constructing physical models of neighborhood landmarks, and using green screens for theatrical storytelling) as highly effective for fostering intrinsic motivation and "indescribable" joy among children.

Importantly, project data suggest that enabling conditions are not defined by the mere provision of technological hardware, but by the integration of technology within a reflective, process-oriented pedagogical framework. Successful implementation required a mindset shift where educators "trusted the process" rather than adhering to rigid programming, allowing digital tools to serve as "creative extensions" of children's ideas rather than toys.
As one teacher articulated this clearly:

> *"We have learned that what is important is not the final result but the process. Trust the process: we had very closed programming of what we have to teach the children, and many times the projects in which we must change our way of working scare us because we think that we do not have enough time to implement it. You have to trust the process and introduce elements that are not so structured, but they work very well with the children. Dare to take risks, to break very closed, rigid programs. We are giving greater freedom in artistic activities, for example in the creation of the models. We already did it in a certain way, but now the children have learned and ask for greater freedom when creating. When you give them freedom, you realize what they can really do, what they are capable of. Next year we will also include the digital tools used in CREATECH".*

Activities that allowed children to take ownership of ideas, experiment with digital media, and collaborate with peers were associated with higher engagement, sustained motivation, and deeper cultural understanding.

Professional Development and Continuous Support

Longitudinal analysis of teachers' confidence in applying CREATECH project skills (Annex Group 12) and post-project activities feedback (Annex Group 10 and 11) indicate that effective implementation of the THE Model depends on sustained practice rather than one-off theoretical training. Although participants valued the initial workshops and transnational training, they emphasized the need for reusable tutorials and structured materials to consolidate skills over time. The *CREATECH Guidebook (A Guidebook for Creative Practices and Transmedia Heritage Education in ECEC)* directly responds to this need. Its clearly structured methodology, step-by-step digital creation guides (e.g., audio stories, films with soundtracks, 360-degree photography), sensory heritage activities, case studies, evaluation tools, and "Tips & Tricks" section provide ongoing reference points that extend learning beyond formal sessions.

Teachers identified two key thresholds requiring continuous support: technical mastery of digital workflows and pedagogical integration into age-appropriate heritage narratives. Both dimensions are systematically addressed through the Guidebook's practical activities and examples of year-long and shorter projects.

Importantly, this approach aligns with the National Curricula Review (Annex 1), which emphasizes continuous, reflective professional development and in-service training. By enabling self-assessment, competence development, and knowledge sharing, the CREATECH Guidebook functions not only as a manual but as a structured instrument for sustained professional growth within existing ECEC frameworks.

Child-Centered and Contextual Alignment

Child-centered agency and contextual alignment are core enabling conditions for the successful implementation of the Transmedia Heritage Education (THE) Model because they ensure that the methodology connects meaningfully with children's developmental needs and lived realities.

Child-centered agency functioned as an implementation catalyst. The model was most effective when children were viewed as "competent social agents with rich potential", rather than passive recipients of knowledge. Shifting from rigid, outcome-driven instruction to process-oriented learning enabled active meaning-making and narrative ownership. Teachers observed that when children were encouraged to shape transmedia stories themselves, projects evolved in unexpected but highly engaging directions. Grounding activities in play- and inquiry-based learning further aligned the model with established European ECEC principles, making it feel pedagogically coherent rather than externally imposed.

Contextual alignment, particularly the emphasis on "heritage close to us," was equally important. Implementation was strongest when children explored familiar environments (local parks, sculptures, or family traditions) fostering relevance and a sense of belonging. Intergenerational activities connecting past, present, and future transformed heritage into a lived, participatory experience.

These conditions were reinforced by structural factors: national curricula across partner countries already emphasize child-centered approaches and local adaptation; the model's flexible design allowed contextual tailoring; and the presence of familiar educators ensured appropriate scaffolding of children's initiatives.

4.2. Challenges observed across contexts

Testing and adapting the THE Model within an ECEC context, while largely successful, was not without challenges. These obstacles, identified through research data and participant feedback,

were addressed through pedagogical adaptations, methodological refinements, and the development of a structured yet flexible framework articulated in the CREATECH Guidebook.

Although the challenges emerged with relatively low frequency, they were nonetheless carefully recognized and systematically addressed. This chapter distinguishes between challenges related to the implementation of the THE Model itself and those associated more broadly with the practical realities of implementing the CREATECH project across diverse institutional contexts.

Implementation Challenges Related to the THE Model

Developmental Suitability and Cognitive Rhythms

The challenge:

Although raised by only a small number of teachers, concerns emerged regarding the developmental suitability of the THE Model for preschool-aged children. Originally developed within the Future Narratives project (2021-2022) for primary school children aged 7-12 in Finland, Spain, and Serbia, within this CERATECH project, the model was adapted and tested in an ECEC context. Some educators questioned whether the goals and long-term project structure were fully appropriate for 5-year-olds, noting young children's shorter attention spans and evolving memory capacities. As one teacher reflected in post-project feedback (Annex Group 11): "As a teacher, I believe the project's goals and objectives are not suited to the 5-year-old children it was designed for. I believe older children, aged 6 or 7, would have had a greater understanding of what they were creating and the tools they were using".

The response:

These concerns were addressed through pedagogical adaptation emphasizing flexible pacing and child-centered agency. Activities were divided into shorter, developmentally appropriate sessions, incorporating regular breaks for movement and play. The Guidebook further recommends the use of a "friendly character" (e.g., Kaneli the mouse in Finland or Pepe Montaña in Spain) to scaffold learning and create emotional continuity across sessions. This playful narrative framing supported engagement, comprehension, and sustained motivation, ensuring alignment with preschoolers' cognitive rhythms and developmental profiles.

Large Group Dynamics vs. Individual Agency

The challenge:

Working with large groups presented a significant challenge to fostering individual agency and meaningful participation. In some contexts, activities were conducted with very large groups (e.g., approximately 100 children in Madrid or more than 25 in Serbia), limiting opportunities for personal experimentation, dialogue, and creative ownership. Post-project feedback from educators (Annex Group 11) highlighted that limited time combined with large group sizes reduced children's ability to internalize learning through hands-on exploration. As one teacher noted, "The large group also did not allow everyone to express themselves and experiment... It

would have been more appropriate to work with smaller groups of 6-8 children, to allow everyone to experiment and get involved".

The response:

Research findings from focus groups (Annex Group 10) and post-project feedback (Annex Group 11) consistently identified small group work as a critical enabling condition. At the same time, implementation required sensitivity to contextual differences, group dynamics, children's interests, and diverse learning needs. Consequently, flexible grouping strategies were formally integrated into the methodology. The CREATECH Guidebook emphasizes that grouping should depend on the activity and consider inclusion, particularly for children with special needs. Tasks such as creating scenes, building props, or combining media formats are specifically recommended for smaller groups to ensure that each child is acknowledged, supported, and able to actively contribute.

Implementation Depth and School Rhythms

The challenge:

Rigid school calendars and demanding teacher workloads often conflicted with project timelines. Focus group interviews with teachers (Annex Group 10) identified fixed teaching programs and time constraints as significant barriers to integrating a long-term project into existing schedules. As one teacher from Spain explained, "We had very closed programming of what we have to teach the children, and many times projects that require us to change our way of working scare us because we think that we do not have enough time to implement them. You have to trust the process and introduce elements that are not so structured, but they work very well with the children". Teachers from Finland similarly noted that a "long-term approach doesn't always work the same way," particularly with younger children or those with special needs, underscoring the need for flexibility in pacing and structure.

The response:

THE Model demonstrated adaptability by offering two implementation pathways: a year-long integration, embedding activities into everyday routines, or a shorter, intensive two-month cycle. This flexibility enabled schools to align the project with their institutional rhythms and workload realities.

As described in the Guidebook, some kindergartens integrated the project throughout the entire school year, allowing ideas to develop gradually within daily play and thematic work. Others opted for a concentrated two-month period, creating an intensive, hands-on phase in which children could engage deeply and bring their ideas to fruition within a shorter timeframe.

Implementation Challenges Related to the CREATECH Project

Technical Learning Curves and Technological Fear

The challenge:

Following the transnational teacher training (Annex Group 9) participants reported initial difficulties with certain digital tools. While iMovie was generally perceived as intuitive and accessible, GarageBand and the Insta360 camera presented higher technical thresholds. These tools required more advanced operational understanding, which led to hesitation and, in some cases, expressed “fear” among teachers. Importantly, these concerns were not rooted in resistance to technology itself, but in the need for additional practice and hands-on experience to build confidence.

The response:

The project adopted a learning-by-doing approach, ensuring that training sessions were followed by practical classroom application. This reduced the gap between theory and practice and allowed participants to consolidate skills in real contexts. To further support sustained confidence, the CREATECH Guidebook includes step-by-step guidance and video tutorials for tools such as iMovie and GarageBand, enabling teachers to independently revisit and refine technical procedures. Moreover, the pedagogical focus shifted from achieving technical perfection to using digital tools as meaningful instruments for storytelling and creative expression, thereby reducing performance pressure and reinforcing purpose-driven technology use.

Language and Communication Barriers

The challenge:

Transnational training conducted in English created moments of “emotional discomfort” for some participants with limited language proficiency, which in certain cases reduced the uptake of more complex digital concepts. As reflected in post-training feedback (Annex Grpup 8): “My own language skills brought the most challenges. I feel that I did understand the instructions and conversations in English, but I found the production of speech itself challenging and nerve-wracking. As the week progressed, I got encouraged in that too”.

The response:

During implementation, local coordinators and tutors provided translation and native-language mediation to ensure clarity and pedagogical security. A key recommendation for future iterations is to prioritize tutor training in their native languages, enabling them to function as a reliable local “safety net” for teachers. To support sustainability and accessibility, the CREATECH Guidebook was translated into Finnish, Italian, Serbian, and Spanish in addition to English.

Importantly, while language barriers emerged in adult training contexts, the implementation with children demonstrated the inclusive potential of the THE Model. In groups with migrant children and diverse linguistic backgrounds, arts-based and multimodal activities (such as music, movement, drawing, and visual storytelling) enabled participation beyond verbal language. Creative expression functioned as a shared communicative space, illustrating that the transmedia

and arts-based nature of the THE Model can transcend linguistic boundaries and foster inclusion through non-verbal forms of meaning-making.

4.3. Impact on teachers' professional development

The implementation of the CREATECH project and the Transmedia Heritage Education (THE) Model in early childhood education and care (ECEC) contexts had a demonstrable impact on teachers' professional development, encompassing pedagogical approaches, technological proficiency, and cultural competence. Analysis of post-training and post-project questionnaires, longitudinal self-assessments, and focus group interviews indicates that the initiative contributed to both skill acquisition and transformative changes in teachers' professional practice.

Enhanced Pedagogical Competence and Confidence

Teachers reported significant growth in their confidence to design, adapt, and implement project-based learning experiences within their kindergarten groups. Questionnaire data revealed that self-reported confidence increased most notably in adapting digital and cultural heritage activities to specific group needs and guiding children in the creation of their own digital content. While confidence in some areas, such as immersive storytelling or the use of cultural heritage content, remained relatively stable, longitudinal analysis suggests that teachers developed a greater readiness to initiate and sustain innovative pedagogical projects. Focus group findings corroborate these trends, highlighting a shift toward process-oriented and phenomenon-based teaching, prioritizing child agency and exploration over rigid programming.

Teachers also reported an expanded repertoire of pedagogical strategies. Participation in CREATECH facilitated the integration of cross-curricular and STEM-informed approaches with creative, experiential learning methods. By engaging in transmedia and collaborative projects, teachers learned to scaffold children's creativity, provide meaningful cultural context, and structure activities that promote autonomy, reflection, and problem-solving. Many teachers noted that this shift fostered both personal professional growth and enhanced classroom dynamics, enabling more inclusive, responsive, and flexible pedagogical practices.

Digital and Technological Skill Development

A core dimension of professional development was the acquisition of digital competencies. Teachers gained practical experience with tools such as iMovie, GarageBand, stop-motion animation, 360-degree cameras, and green screen technology, often overcoming initial unfamiliarity or apprehension. This technological proficiency extended beyond technical operation, encompassing the integration of tools into pedagogical sequences that were developmentally appropriate and culturally meaningful. Teachers emphasized that their ability to guide children in the creation of digital artifacts (videos, soundscapes, and multimedia narratives)

strengthened both their own professional confidence and their capacity to foster digital literacy in early learners.

Focus group narratives further illustrate the transformative nature of this learning. Teachers described a shift from using digital tools primarily for administrative or demonstration purposes to employing them as mediums for creative and participatory learning. They reported enhanced confidence in supporting children's experimentation with technology, observing that children could independently explore and express complex ideas through digital media. This experience reinforced teachers' understanding of technology as a facilitator of child-centered learning rather than an endpoint in itself.

Reconceptualization of Cultural Heritage in Pedagogy

Professional development extended beyond technical and pedagogical skills to include deeper conceptual engagement with cultural heritage. Teachers reported a redefined understanding of heritage, moving from a "monumental" or distant perspective to recognizing heritage within children's everyday environments, local sites, and traditions. This shift allowed teachers to embed cultural knowledge in pedagogically meaningful ways, supporting identity formation, social learning, and civic awareness. Focus group data highlight that this reconceptualization influenced teachers' planning, enabling them to link local cultural contexts with transmedia storytelling activities, thereby enhancing both children's engagement and learning outcomes.

Collaborative and Reflective Professional Growth

The CREATECH project also promoted collaborative and reflective professional practices. Teachers engaged in international exchanges, peer learning, and joint problem-solving, which fostered intercultural competence and professional dialogue. Participation in focus groups revealed that teachers valued opportunities to share experiences, observe diverse approaches, and reflect critically on their own practice. This collaborative dimension reinforced professional autonomy, encouraged experimentation, and facilitated the transfer of learning into varied classroom contexts.

4.4. Impact on children's creativity, cultural awareness, and agency

The implementation of the CREATECH project and the Transmedia Heritage Education (THE) Model had a pronounced impact on children's learning, particularly in the domains of creativity, cultural awareness, and agency. Analysis of focus group transcripts, teacher questionnaires, and observational reports demonstrates that participation in transmedia, heritage-integrated activities fostered both cognitive and socio-emotional development in early childhood education and care (ECEC) settings.

Enhancement of Creativity and Expressive Skills

Children consistently demonstrated elevated levels of creativity across multiple modalities, including visual arts, storytelling, music, performance, and digital content creation. Teachers reported that activities involving hands-on construction, model-making, drawing, and design were among the most engaging and motivating for children. Additionally, digital tools (such as iPads, 360-degree cameras, stop-motion animation, GarageBand, and green screen technology) provided children with platforms for experimentation, self-expression, and narrative construction. These tools were not used solely for play but as vehicles for creative problem-solving, storytelling, and collaborative production. Examples included child-designed birthday videos, spontaneous character creation during filming, and music composition, all reflecting high levels of originality and initiative.

Fostering Agency and Autonomy

The project empowered children to take ownership of their learning processes, positioning them as active participants rather than passive recipients. Teachers observed that children frequently initiated ideas, led project directions, and contributed collaboratively to decision-making. Roles within group work were often self-assigned or negotiated among children, reinforcing responsibility, self-confidence, and leadership. Even reserved or hesitant children were observed to experiment, perform, and take risks within a supportive and structured environment. Teachers noted that children learned to embrace iterative processes, understanding that mistakes were part of learning and could be revised, particularly in digital and multimedia contexts.

Development of Cultural Awareness and Identity

Participation in CREATECH activities enhanced children's understanding of local and broader cultural heritage. Through storytelling, visits to local heritage sites, interactions with older community members, and exploration of both monumental and everyday cultural artifacts, children developed a sense of place, belonging, and continuity. Multicultural groups benefited particularly from activities that juxtaposed local and Finnish cultural contexts, fostering appreciation for both their own heritage and that of others. Teachers reported that children demonstrated increased knowledge of traditions, local history, and cultural practices, alongside an emerging capacity to contextualize these within their lived experiences.

Social Learning and Collaborative Engagement

The project also supported social development through structured collaboration and cooperative problem-solving. Children engaged in debates, peer mentoring, joint project creation, and inter-age interactions, such as collaboration with older children on technology-supported tasks. These experiences promoted mutual respect, conflict resolution, and shared responsibility. Teachers noted that teamwork facilitated confidence for individual children, provided peer modeling, and strengthened social bonds within the group. Collaborative activities also allowed children to collectively navigate complex tasks, integrating technological tools, creative ideas, and cultural content.

Affective and Motivational Outcomes

Teachers consistently highlighted the intrinsic motivation and positive emotional engagement fostered by the project. Children were frequently described as eager, excited, and invested in project activities, expressing pride and satisfaction upon completion of tangible outcomes such as videos, songs, or models. The opportunity to share these outputs with peers, families, and broader communities further reinforced self-esteem and a sense of achievement, contributing to both personal and collective confidence.

4.5. Added value of cultural heritage and technology in transversal learning

The integration of cultural heritage and digital technologies within the CREATECH project and THE Model provided substantial added value to transversal learning in early childhood education and care (ECEC) settings. Evidence from teacher questionnaires, focus group interviews, and project observations demonstrates that the combined use of heritage-based content and multimedia tools fosters holistic development, promotes interdisciplinary learning, and strengthens the practical application of cross-curricular competencies.

Facilitation of Interdisciplinary Learning

Cultural heritage served as a central, contextually rich content domain around which children could engage with multiple disciplines simultaneously. Through immersive storytelling, site-based exploration, and transmedia projects, children connected historical, social, artistic, and environmental knowledge in meaningful ways. Teachers reported that heritage-driven activities naturally integrated cognitive, creative, and social domains, enabling children to develop a broader understanding of their local environment and societal practices. The use of digital tools (such as 360-degree cameras, stop-motion animation, and audio-visual editing) amplified this effect by allowing children to manipulate, combine, and reinterpret content across modalities, fostering experiential and multimodal learning processes.

Promotion of Transversal Competencies

The project supported the development of key transversal competencies identified across partner-country curricula, including creativity, cultural awareness, communication, collaboration, digital literacy, and civic engagement. By embedding cultural heritage into interactive, technology-mediated projects, children were encouraged to participate actively in problem-solving, narrative construction, and peer-to-peer teaching. This active engagement strengthened competencies that extend beyond specific disciplinary knowledge, cultivating cognitive flexibility, critical thinking, and metacognitive skills. Teachers consistently noted that children's participation in these activities fostered reflection, decision-making, and collaborative negotiation, reinforcing both academic and social-emotional learning outcomes.

Enabling Child-Centered and Participatory Learning

The combination of cultural content and technological tools facilitated a shift from teacher-directed instruction toward child-centered, participatory approaches. Heritage-based projects provided authentic contexts for children to explore and interpret, while digital tools offered flexible means for children to document, communicate, and share their findings. Teachers highlighted that children assumed leadership in project decisions, initiated creative ideas, and exercised autonomy in multimedia production. Such practices reinforced children's sense of agency, supporting the development of responsibility, self-efficacy, and collaborative decision-making within group-based learning.

Enhancing Motivation and Engagement

The integration of heritage and technology significantly enhanced children's intrinsic motivation and sustained engagement. The use of familiar and locally meaningful cultural content fostered personal relevance, while digital tools provided immediate, tangible outputs that could be shared and celebrated. Observations indicated that children were highly motivated to participate in heritage-based storytelling, multimedia creation, and collaborative problem-solving activities, leading to higher levels of attention, persistence, and pride in accomplishment. Teachers emphasized that the combined use of culture and technology created a "playful yet purposeful" learning environment, where cognitive challenge and emotional satisfaction were mutually reinforced.

Catalyzing Reflective and Inclusive Pedagogy

Finally, the use of cultural heritage and technology in tandem supported reflective and inclusive pedagogical practices. Teachers reported that transmedia projects prompted careful consideration of group composition, learning needs, and differentiation strategies, while enabling meaningful engagement across diverse linguistic, cultural, and developmental contexts. By leveraging heritage content and digital tools, educators could scaffold learning experiences, provide individualized support, and document processes in ways that enhanced visibility, assessment, and reflection at both child and classroom levels.

7. Conclusion

7.1. Summary of research insights

The research findings provided a comprehensive insight into teachers' professional development and children's creativity, cultural awareness and agency within the framework of the CREATECH project implementation.

In terms of the pedagogical advancements, there is evidence of improved confidence and tendency towards child-centred and collaborative approach in the ECEC teachers' community. This is especially important when taking into account the differences in professional culture and circumstances between participating countries. In some professional contexts, challenges related to the size of the groups and other organizational factors captured in this study, can affect the capacities of the teachers to foster more participatory pedagogy. The overall shift towards more confident use of digital tools and heritage-based learning is a promising trend, additionally supported by the evidence of culturally embedded reflective practices.

It is equally evident that the participation in creative heritage place-based pedagogical projects opened a sea of opportunities for the advancement of children's creativity, cultural awareness, and agency. The learning environment is one of the critical elements of the lifelong learning process and it starts in early childhood, through exploration of immediate cultural surroundings and familiarization with the community within one's own environment. Apart from the focus on the child-centred process between multisensory experience and creative expression, what additional makes the research insights relevant for the ECEC practice cross-culturally is the participatory and inclusive character of the transmedia heritage approach, qualifying it as a solid framework in fostering not only social and environmental awareness, but also cultural literacy, contextual curiosity and autonomy of young learners.

While challenges emerging from the study primarily affect the organizational and structural considerations related to the implementation of creative place-based pedagogical projects in diverse ECEC contexts of the participating group of teachers, they are not without effect on the overall applicability of the Transmedia Heritage Education Model. Consequently, the THE Model has been adapted according to these insights and in line with the observed contextual needs.

7.2. Adapting THE Model to early childhood contexts

Direct experiences of the CREATECH pedagogical projects implementation in kindergartens, together with the comprehensive research findings, led to the transformation of the Transmedia heritage storytelling into a unifying, cross-cutting aspect of the THE Model. While the learning process starts with the visit to the heritage place in children's surroundings, the Sensory exploration extends and intertwines with Digital creation,still providing a first-hand multisensory experience of a cultural surroundings. Transmedia heritage storytelling unifies Sensory exploration and Digital creations by adding a storytelling element to the process. In this way, the multisensory experience of heritage, creatively expressed in digital production, is extended into a narrative interpretation, complemented by art-based design of sets, props and costumes for the final transmedia stories. In CREATECH, these took the form of a digital 360 environment, consisting of all the digital and crafted production together telling the story of the chosen heritage place.

This structural change in the THE Model is based on the insights related to the sequence of steps in the implementation of pedagogical projects. In most cases, due to various organizational reasons on one hand, but also to the perception of time, attention span and evident group dynamics on the other, there was a clear tendency by participating teachers to intertwine Sensory Exploration and Digital Creation and practically address them in parallel. The other part of this structural change is re-addressing the role of Transmedia heritage storytelling. Again, this aspect was not a final phase of the applied THE Model, as conceived in the previous iteration, but rather a leading idea, conceptually directing the combination of sensory experiences and creative work. The storytelling almost naturally started to emerge within groups from the first encounter with the chosen cultural environment and it very soon started to get different shapes through creative doings.

The other conceptual change in the THE Model is that it takes into account different levels of perception of cultural environment, which is a significant factor when involving young children in a situated learning process. The families, peers and educators are what makes their immediate surroundings and this inevitably affects the perception of wider cultural surroundings, as much as the children are encouraged to individually and directly experience their chosen heritage place.
This was evident through observation of the pedagogical projects implementation and research insights, but is also a result of prior experience-based consideration. Early steps of enculturation very much rely on the relations, as well as boundaries, between oneself, families, peers and teachers and the spatial dimension which contextually integrates all these relations, but also sets them apart.

<table>
<tr><td>ME</td><td rowspan="3">SENSORY EXPLORATION</td><td rowspan="3">DIGITAL CREATION</td></tr>
<tr><td>COMMUNITY</td></tr>
<tr><td>CULTURAL SURROUNDINGS</td></tr>
<tr><td></td><td colspan="2">TRANSMEDIA HERITAGE STORYTELLING</td></tr>
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7.3. Future directions for transmedia heritage learning in ECEC

The effect of the conceptual changes in the THE Model for the learning contexts other than ECEC are yet to be reviewed in the future iterations of the methodology, having in mind that the THE Model is conceived and being tested extensively for the general applicability in lifelong learning.

What is already evident is that transversality of both heritage-based learning and transmedia storytelling is a critical quality in transmedia heritage education as a lifelong learning approach. It is in particular advantageous in the context of ECEC in that it directly addresses the needs of early childhood curricula, which is usually phenomena-based rather than subject-based and which heavily relies on both creative storytelling and multisensory experience. Digital technologies are significantly contributing to multimodality, as another crucial learning requirement.

In essence, the Transmedia heritage education methodology, being tested through field projects and at the same time refined through the iterations of the THE Model, will need to be applied in other learning contexts and use other specific forms of heritage and forms of sensory exploration and creative expression, both physical and technology-based, to be able to provide a holistic support to lifelong learning in a variety of learning environments.

8. References

- CREATECH Project Consortium. (2025). CREATECH guidebook: A guidebook for creative practices and transmedia heritage education in ECEC.

9. Annexes

Due to their volume and in order to ensure clarity, accessibility, and practicality in the delivery of project outputs, the annexes referenced throughout this Research Report are provided as a separate document.

The complete set of supporting materials is compiled in a standalone volume entitled:
Research Documentation Compendium: Research Annexes

This compendium contains the full documentation of data collection instruments, analytical reports, quantitative outputs, and supplementary materials referenced in the main body of the report.

The contents of the Research Documentation Compendium are listed below:

- Annex 1: National Curricula Review (All Partner Countries)
- Annex Group 2: Pre-Project Questionnaire for CREATECH Project Staff
- Annex Group 3: Mid-Project Questionnaire for CREATECH Project Staff
- Annex Group 4: Post-Project Questionnaire for CREATECH Project Staff and Tutors
- Annex Group 5: Post-Tutor Training Questionnaire for Tutors
- Annex Group 6: Pre-Cultural Heritage Workshop Questionnaire for Kindergarten and Preschool Teachers

- Annex Group 7: Post-Cultural Heritage Workshop Questionnaire for Kindergarten and Preschool Teachers
- Annex Group 8: Pre-Teacher Training Questionnaire for Kindergarten and Preschool Teachers
- Annex Group 9: Post-Teacher Training Questionnaire for Kindergarten and Preschool Teachers
- Annex Group 10: Focus Group Interviews with Kindergarten and Preschool Teachers
- Annex Group 11: Post-Project Questionnaire for Kindergarten and Preschool Teachers
- Annex Group 12: Analytical Reports on Longitudinal Professional Development
- Annex 13: Selected Testimonials from Project Participants
- Annex Group 14: Discarded Data Collection Tools
- Annex 15: Research & Indicators Chart


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