STORIES**: fo**ST**ering early childh**O**od media lite**R**acy competenc**IES
Erasmus+ KA2 - Cooperation for innovation and the exchange of good practices
Strategic Partnerships for school education
2015-1-IT02-KA201-015118

STORIES: SECOND Q&E REPORT

Date	01.09.2018
Authors	Tuula Nousiainen (JYU) with contributions from all partners
Keywords	Q&E, self-evaluation
Description	This is the second internal Q&E report of the STORIES project, delivered at the end of the project.

CONTENTS

STORIES: SECOND Q&E REPORT

The purpose of the second (and final) Q&E Report is to provide a self-evaluation of the Intellectual Outputs produced in the STORIES project as well as the main aspects of the project process (Dissemination, Exploitation, Management, and Quality and Evaluation). In this document, we present our assessment of each of the IOs and process aspects (based on the extent to which they correspond to the objectives set in the project proposal, remarks of the external evaluator, feedback from participants, and self-assessment). Each section concludes with our key observations and suggestions.

This document builds on the first Q&E Report completed earlier in the project. The report completes the evaluation of those IOs that were either not started or still in progress at the time of the first Q&E Report.

1 MANUAL OF PRACTICES (IO1)

The first intellectual output was the Manual of DST practices. The partner responsible for the output was UNIMORE. In the project plan, the IO was defined to include the following activities: *A1) Manual concept; A2) Research activities on the state of art use of digital storytelling in infancy - Good practices collection*; and *A3) Drafting of the Manual.* All the activities have been completed: the online version of the manual has been published.

1.1 Developing the manual of practices (activities A1-A3)

UNIMORE compiled the content of the manual with the aid of other partners' contributions: the desk research for the text was conducted by UNIMORE, and each partner submitted examples of DST practices which were included in the manual. UNIMORE presented the first draft of the manual in the second project meeting (May 2016) and continued its development during the first project year. The manual was published online in late 2016.

The **contents** of the manual follow the structure foreseen in the project proposal, the first part being related to the state of the art (Pedagogical premises of storytelling and the DST paradigm) and the second part focusing on DST case studies from different countries. The case studies are also enclosed as appendices.

The project proposal established specific **quantitative indicators** for this IO: *at least 3 best practises from each partner country (12 total)* and *at least 3 more practises from EU and extra-EU.* The manual draft meets these quantitative goals.

The manual draft was evaluated by the **external evaluator**. Table 1 summarises the remarks made by the external evaluator upon reviewing the manual and how these issues were addressed.

Table 1. Addressing the external evaluator's comments in IO1

External Evaluator's suggestions regarding the manual	Addressing the suggestions
Clarifying the primary target group of the manual (teachers, researchers, university students?)	Unimore has aimed to add specifics about the target group, such as which part are more interesting for different partners, as kindergarten and primary school teachers, high school and University students, stakeholders, scholars.
More direct association between the practices and the text of the second part, such as short examples embedded within the text (for improved readability)	Unimore has looked into structuring the contents by mixing the theoretical parts and the practical ones through spaces of interaction within the different chapters.
Possibly extending the part of the analysis of the practices showcasing a few of the collected practices directly in the text	Unimore has aimed to extend some analysis of particularly relevant practices.

Finally, the partners have also **self-assessed** the manual draft with a specific checklist consisting of seven assessment items. Each partner agreed that the manual met these criteria (set in the project proposal): 1) completeness, 2) usefulness, 3) definition of storytelling, 4) clarifying the state-of-the-art, 5) analysing the required number of practices, 6) usefulness of practice analysis, and 7) usefulness for the development of the training course.

1.2 Conclusions

The following main points summarise the main quality-related aspects that pertain to this IO:

- It is useful that the manual is built in such a way that the theoretical content is closely associated with concrete practices, which enhances its **readability**.

- It is important that the **primary target group** is clear and the content is formulated accordingly.

2 SCIENTIFIC RESEARCH (IO2)

The second intellectual output was *Scientific Research*. The partner responsible for the output was JYU. In the project plan, the IO was defined to include the following activities: *A1) Definition of the focuses of observation; A2) Definition of methodology of observation; A3) Scheduling of observation activities; A4) Observation on experimental activities; A5) Analysis of the results;* and *A6) Realization of the report of observation.* All the activities have been completed, and scientific papers will be published in journals after the official end of the project.

2.1 Establishing the research design (activities A1-A3)

The first three activities under IO3 were related to the preparation of the research activities. The research design was constructed as a collaborative effort between the partners, with JYU having the main responsibility for putting together the research plan. The development of the research design began in the project kick-off meeting, and the work continued online as well as in the subsequent project meetings.

In the final **research design** established by the partners, the overall research process followed the design-based research approach, which was in accordance with the cyclical structure of the project activities (i.e., two cycles of educational experiments) as well as with the twofold general objectives (i.e., research- and practice-focused). In terms of data collection, the partners decided to adopt a mixed-method approach combining qualitative and quantitative data, which allowed the integration of transnational data.

The **research questions** were reiterated several times in order to meet two goals: accordance to the objectives of the project plan and feasibility in terms of the partners' and the teachers' time resources. Three joint research questions for all partners were established, one of them focusing on the products, one on the process, and one on the teachers' competences:

1. Which digital narrative elements occur in children's digital stories? (RQ1; product)

2. What are the characteristics of the interactive process of building a digital narrative in a digital storytelling project in ECE? (RQ2; process)

3. What are the teachers' competences in ECE DST on an individual and a collective level? (RQ3; competences)

In addition to these, partners could incorporate their own country-specific themes. The country-specific questions were as follows:

4. What is the children's experience of their agency and learning during the digital storytelling process? (RQ4; Finland)

5. Developing young children's creativity: what can we learn from DST practice in early childhood settings? (RQ5; Italy)

6. How do digital storytelling activities support children's social-emotional development, in terms of children's verbal and nonverbal group interactions and the narrative elements exhibited individually in story creation process? (RQ6; Turkey)

The research questions did not directly follow the four themes foreseen in the proposal (Creativity; Attention/memory; Cognitive processes; Meta-cognitive processes) but these aspects were also included. They also addressed the need to focus on the process as well as the results, as stated in the project plan. Also, in data analysis process some of those themes were emphasized when emerged.

A set of **research instruments** was developed to provide data for the research questions: Teacher Questionnaire, Project Sheet, and Yearly Summary for the teachers to fill out, and Digital Story Evaluation Form for the researchers to guide the analysis of the digital stories produced by the children. The rationale and role of each instrument was described in the research plan. The instruments were not identical to those originally envisioned in the project proposal: due to limited time resources, researchers' observational activities were replaced with a Yearly Summary in which the teachers recorded their observations on the development of children's media literacy and social skills in DST activities after each project year (however, some countries included observation in their country-specific activities). Furthermore, the Teacher Questionnaire was developed to answer the research question related to the teachers' perceived competences. Project Sheet also helped researchers envision the implementation process of each project and provided opportunities to teachers to record their observational notes if needed.

The project approach was built on the CoRe Report. As an ad-hoc activity, JYU had the opportunity to briefly present the project and obtain direct **feedback from one of the main authors of the CoRe Report**, Professor Mathias Urban, in September 2016. He emphasised the participatory nature of the activities throughout the project: in documentation and analysis, in training, and especially in the implementation of the projects (i.e., children's agency as opposed to very teacher-directed activities, and considering children's individual differences). As mentioned above, the role of participant observation in the field had to be diminished due to limited resources. However, observation and interviews were included in partner-specific research themes to a feasible extent, and the teachers were encouraged to aim for children's active agency in the activities.

Based on the first project cycle, the partners shared experiences in the mid-term project meeting (September 2017). The partners discussed some data-related concerns (see Section 2.3) that should be addressed in the analysis, reporting, and future data collection. The main conclusion was that it was necessary to further reduce the workload that was required from the teachers. Hence, the partners collaboratively **revised the research instruments** before the second project cycle. To maintain consistency with the earlier versions, no major changes were made, but some redundancies were eliminated and some instructions were made more specific.

2.2 Implementing the research: Data collection and analysis (activities A4-A6)

The partners translated the research instruments into their own languages and used them to **collect data** from the educational experiments implemented in the kindergartens during two research cycles (see Section 5 for further evaluation of the indicators related to the educational experiments). After the first research cycle, a specific SPSS file was created for each instrument (Project Sheet, Yearly Project Summary, Digital Story Evaluation Form, and Teacher Questionnaire). Each partner was responsible for entering their data into the SPSS files, as well as translating open-ended answers when necessary. After both research cycles were finished, the partners updated their SPSS files with the new data, and the SPSS files from all countries were combined for the purpose of transnational analysis.

The transnational data was used in the **analysis** related to the first three research questions. JYU was principally responsible for the analysis pertaining to RQ1 and RQ3, and MSGSU was

principally responsible for the analysis pertaining to RQ2. The data related to the three partner-specific research questions was analysed by the partner responsible for each respective question.

A **final report** of scientific research was compiled, consisting of sections presenting the 1) background (relevant previous research), 2) research methodology, and 3) results of the STORIES research activities with each research question presented in its own chapter. All partners contributed to the final report, with JYU having the main responsibility for putting it together. The Research Report as a whole has been made available to the funding agency.

In terms of reporting the research, there were two **changes** in relation to the original plan presented in the project proposal. The first one was related to mid-term reporting of the research results. In the first Q&E Report, we already anticipated that the completion of the data integration from the first cycle would most likely take longer than foreseen in the project plan. Therefore, the effort of analysing transnational data concentrated on the whole data set from both cycles instead of producing a separate mid-term report based only on the first-year data. As described in Section 2.1, after the first cycle, each partner preliminarily examined their respective national data with the aim of identifying possible needs for changes to the process and instruments in the second cycle.

The other change was related to the publishing level of the Research Report. In the project proposal, it was tentatively foreseen that the final research report as a whole would be made publicly available as an OER. However, in the final project meeting (August 2018) the partners jointly decided that the research results would be presented to the general public only in a condensed form as part of the Guidelines (IO6) while the broader Research Report would remain internal. This was deemed necessary in order to enable the project consortium to publish the results in scientific journals that require the results to be previously unpublished.

Regarding the publication of the research results, the project proposal foresaw the following **quantitative indicators**: *at least 3 papers submitted to scientific journal/magazine on the topic issue* and *at least 1 national or international conference attended by each partner*. Tables 2 and 3 present the status of these goals by the end of the project lifetime. As the tables show, the quantitative goals have been met.

Table 2. Papers submitted to scientific journals

Papers submitted (as of September 2018)
1. Bertolini C. (2017), *Theory and practice of digital storytelling in preschool"*, Form@re, http://dx.doi.org/10.13128/formare-20238 2. Gözen, G., & Cırık, İ. (2017). Impact of digital storytelling on social-emotional behaviours of preschool children (Dijital öykülemenin okul öncesi çocukların sosyal-duygusal davranışlarına etkisi). *Elementary Educational Online* (*İlköğretim Online), 16*(4), 1882-1896. 3. Kiefer, M. & Schlemmer, D. (2018): *Digital Storytelling: Erzählen mit digitalen Medien in der Erst- und Zweitsprache*. In: Schmölzer-Eibinger, S., Akbulut, M. & Rotter, D. (Hrsg.): Erzählen in der Zweitsprache Deutsch. Stuttgart: Fillibach bei Klett, 197-208. 4. Zini A., Bertolini C., Contini A., Manera L.(2018), *"Digital storytelling in early childhood education and care: teacher training in the STORIES project"*, Italian Journal of Educational Technology, DOI: http://dx.doi.org/10.17471/2499-4324/963

Table 3. National or international conferences attended by each partner

Conferences attended (as of September 2018)	
DE	1. Conference "Challenging Reading" Universität Münster, Germany, March 2016 (talk) 2. Kiefer, M.(2016): STORIES. Fostering Early Childhood Literacy Competencies, Vortrag bei der 19. Grazer Tagung Deutsch als Fremd-/Zweitsprache und Sprachdidaktik. Universität Graz. 3. Kiefer, M. & Schlemmer, D.(2017): Frühe Sprach- und Medienbildung mit Digital Storytelling, Vortrag beim 4. Zukunftsforum Bildungsforschung: Frühpädagogik 2.0? Forschungsdiskurse in der Pädagogik der Kindheit. Pädagogische Hochschule Karlsruhe.
FI	1. Nousiainen, T. & Turja, L. (2017). Digitaalista tarinankerrontaa päiväkodissa. [Digital storytelling in the kindergarten.] Poster presentation at the Interaktiivinen Tekniikka Koulutuksessa [Interactive Technology in Education] conference, April 5-7, 2017, Hämeenlinna, Finland. 2. Merjovaara, O., Nousiainen, T. & Turja, L. (2018). Digitaalinen tarinankerronta pedagogisena prosessina varhaiskasvatuksessa. [Digital storytelling as a pedagogical process in early childhood education.] Presentation at the Interaktiivinen Tekniikka Koulutuksessa [Interactive Technology in Education] conference, April 11-13, 2018, Hämeenlinna, Finland. 3. Nousiainen, T., Turja, L., Merjovaara, O. & Isotalo, S. (2018). Children's agency in digital storytelling: The role of material environments. Presentation at Childhood and Materiality, the VIII Conference on Childhood Studies, May 7-9, 2018, Jyväskylä, Finland.
IT	1. Conference "Digital Storytelling: media and technologies in ECEC" – MAY 2017, Reggio Emilia – Unimore University 2. 27th Eecera annual conference- AUGUST 2017, Bologna - "Fostering narrative skills through digital storytelling in ECE".
TR	1. Yüksel-Arslan, P. 2016. Examples on Digital Story Implementations and Mobile Application. 7th National Basic Education Symposium Proceedings, 48-56.

Thus far, the submitted papers are based on national data, and the partners have started preparing transnational paper manuscripts to be submitted to journals after the end of the project. In the final project meeting, the partners decided to submit **two joint paper manuscripts (and an optional third one) based on the transnational results** presented in the Research Report. In the same meeting, the partners also agreed that each partner is allowed to separately publish based on their **national data**. The themes and main responsibilities of the joint papers are as follows:

- PAPER 1 – Topic: Teacher competences; Main responsibility: JYU and PH-KA.
- PAPER 2 – Topic: Narrative elements in digital stories; Main responsibility: UNIMORE.
- PAPER 3 – Topic: Comparison of the DST process by year; To be specified.)

Finally, the partners **self-evaluated** the IO at the end of the project with a checklist consisting of seven items, addressing 1) the research *design* (whether it was suitable to the topic), 2) the research *questions* (whether they were formulated in a relevant way), 3) the research *instruments* (whether they provided enough information to be able to answer the research questions), 4) the research *results* (whether they were analysed in an adequate way), and the research *report* (whether it 5) covered the results exhaustively, 6) was applicable in producing scientific publications, and 7) presented the research process in a replicable way). The items were assessed on a three-point scale (fully – partially – not at all), and each responding partner assessed all seven criteria as having been fully met.

2.3 Conclusions

The following points summarise the main quality-related aspects pertaining to the research process after both research cycles (see also Section 5: *Educational experiments*, as these activities are closely intertwined):

- It is useful to build the research design in such a way that it consists of **2-3 core themes shared by all partners** while also **allowing individual partners to expand the scope** (by adding their own research themes and/or by collecting additional data to deepen the existing themes).

- The use of **mixed methods** (i.e., exploring the same themes with both quantitative and qualitative measures) is recommended in order to ensure both breadth and depth of the data and to allow triangulation.

- It is necessary to aim at keeping the **documentation required from the teachers as concise as possible** in order to reduce the additional workload caused by their participation in the project.

The main challenges and limitations we were met with in terms of the **quality and usefulness of the research data** included issues such as

- a kindergarten producing **fewer stories** than intended due to running out of time;

- varying **durations of the digital storytelling projects**;

- varying degrees of **thoroughness of the teachers' documentation** due to the increased workload resulting from filling in the project sheets (sometimes the project sheets were filled in either in a hurry or much later, which reduced the degree of detail provided); and

- teachers having difficulty about the **reliability of their** ratings regarding the children's skills (difficulty of assessing such aspects in such a short period of time and being able to tell how much of possible learning is due to DST in particular).

To some extent, these challenges were to be expected, as the DST activities had to find their place in the day-to-day life of the kindergartens and accommodate to other activities. Some of these challenges were addressed by revising the research instruments. Thus, the research approaches and methods that were chosen for the STORIES research (i.e., a design-based research approach and the use of mixed methods) supported us with building a comprehensive picture of the use of DST in kindergartens despite the aforementioned challenges.

3 TRAINING ACTIVITIES (IO3)

The third intellectual output was Training. The partner responsible for the output was PH-KA. According to the project plan, the IO entailed the following activities: *A1) Definition of competence requirements; A2) Definition of training model / methodology / course contents; A3) Design and production of training practices and multimedia contents;* and A4) *Delivery of training course & activities.* All the activities have been completed.

3.1 Developing the Training Reference Framework (activities A1-A3)

The **training framework** was developed by PH-KA with contributions from other partners. The framework followed the structure envisioned in the project proposal, consisting of four modules: 1) DST pedagogical approach, 2) Technical training, 3) Laboratory project work, and 4) Design of educational projects. Duration, content areas, objectives, and forms of learning were defined for each module.

Additionally, Computer Learning developed an **online tutorial** (see IO4) for Module 2, expanding on the use of the i-Theatre device for those teachers who were going to use the i-Theatre in their projects.

The partners **self-assessed** the training framework with a specific checklist consisting of four evaluation items based on the criteria set in the project application: 1) completeness (i.e., it included a definition of competence requirements and a definition of the training model, methodology, and course contents), 2) inclusion of all relevant competencies needed to conduct a DST project, 3) reference to the CoRe Report, and 4) usefulness for the design and production of training practices and multimedia contents. Each partner agreed that the framework met these criteria.

The project proposal suggested the following **quantitative indicators** for the training course: *at least 20 h / course, at least 5 webinars, at least 5 multimedia pills (multilingual), at least 5 OER contents, at least 4 national forums/blogs + 1 international forum/blog*, and *teachers' community.* The length of the course defined in the training framework meets the aforementioned goal. A set of video pills (in English, focusing on the i-Theatre) have been developed and shared on the STORIES online platform.

The first Q&E Report stated that the development of webinars and OER contents was an issue to be discussed during the final project year. In the last two project meetings (April and August 2018), the consortium discussed the extent to which the outcomes of the project would be made publicly available as OERs. The main OERs to be shared with the general public include the Guidelines (IO6), the Manual (IO1), and the Best Practices (collected as part of IO5). All the digital stories that we have received permission to publish have been made available on the project website as practical examples of DST products. In addition to the transnational materials, each partner has used their own platforms to publish relevant training materials in national languages to different audiences as part of dissemination and exploitation activities.

As anticipated in the first Q&E Report, the role of a transnational teacher community and online forums – the building of which was foreseen in the project proposal – had to be reconsidered by the consortium during the last project year. As suggested by the teacher feedback presented below (see Section 3.2), the teachers preferred hands-on and face-to-face activities to online learning, and it was difficult to motivate them to use online resources. This was further complicated by language challenges, the online resources being in English. The partners discussed these problems in the last

two project meetings in the final year, and came to the conclusion that instead of trying to push teachers towards a specific STORIES-focused transnational online community, it made more sense for each partner to use existing national platforms, communities, and events to inform teachers about the project and its outcomes. However, from the perspective of meeting the pre-specified goals, this solution left a gap in terms of achieving a transnational dimension. The consortium has addressed this gap in two ways. Firstly, the OERs shared on the project website provide the teachers with an overview of how DST was implemented in different countries involved in the project. Secondly, teachers participating in the STORIES activities have been encouraged to consider eTwinning as an opportunity for further European collaboration on the DST theme.

The course framework and its theoretical underpinnings have been published as part of the Guidelines (IO6).

3.2 Implementing DST training courses for teachers (activity A4)

The partners carried out the **training courses** for teachers in their respective countries. In each country, the structure and the main contents of the training followed the joint Training Framework. Within those frames, the partners designed their own training courses, implementing the training in a way that best suited their target group. Table 4 presents a summary of the implementation of the training course in each country.

Table 4. Training course implementation in partner countries

	Participants	**Description**	**Specific observations**
DE	2 schools 4 teachers	The teacher training was conducted in cooperation with ZKM (Zentrum für Kunst- und Medientechnologie).	The feedback we got from our teachers was really positive, even those who had concerns about using new media in ECEC found the training very useful.
	1 school 3 teachers	There was an additional teacher training for the new kindergarten, which started the projects in the second year. This course was held at PH KA.	The teachers had a good previous knowledge of media literacy, so following a learner centred approach we reduced the first module of the training.
FI	4 schools 10-20 teachers (some only in Module 1)	Organised individually in each school (with some joint sessions between 2 schools). Hands-on instructions of select digital apps included in Module 2. Materials shared via a Finnish educational platform already being used by the teachers.	Overall feedback was positive. Teachers did not put very much effort on Module 3 (making their own stories); instead they used the time as an opportunity to freely try out the apps.
IT	6 schools 24 teachers	The teacher training has been held in each school involved, bringing together the teachers involved. The teacher training lasted 20 hours, divided in the specified 4 modules.	Teachers did evaluate the modules extension as adequate, except the first module, perceived as too extended.
TR	4 schools 33 teachers Three training cycles	33 teachers participated to one of the three training cycles conducted at MSGSU. In line with the training framework, both theoretical knowledge and hands-on experiences were provided to teachers. Teachers found opportunities to develop their first project plans, to gain experience with selected DST apps and i-theatre and to create their own digital stories to use as a supplementary material for their actual DST activities.	Teachers found the duration allocated to each module quite sufficient. Some teachers pointed out that it would be more appropriate if they had more time for using the DST apps. Most of the teachers feel sufficiently prepared to plan and conduct a digital storytelling project after the completion of teacher training program.

The partners also collected **teacher feedback**, asking the participants to assess the duration of the training modules and to evaluate whether they felt that they possessed the necessary competences to implement DST. Additionally, they were also asked to provide qualitative feedback on the content of the training. Table 5 provides a summary of the teacher feedback by country.

Table 5. Teacher feedback on the training organised in the partner countries

	Number of answers	**Duration of modules 1 (too long) - 5 (too short)**	**Has adequate competences 1 (agree) - 4 (disagree)**	**Qualitative feedback (2-3 main points)**
DE	3	Module 1a: **3,3** Module 1b: **3** Module 2: **3,3** Module 3: **4** Module 4: **4**	**2**	Positive feedback on motivating function of the teacher training. The group working with StopMotion would have wished for more technical training.
FI	4	Module 1: **2,8** Module 2: **3,5** Module 3: **3,5** Module 4: **3,7**	**2,3**	Positive feedback on relevance and usefulness. Frequent meetings encouraged teachers to complete tasks efficiently. Technical training was perceived as more urgently needed than theoretical training.
IT	24	Module 1: **2,3** Module 2: **2,9** Module 3: **2,8** Module 4: **2,9**	**2**	General evaluation: Interesting, appropriate Suggestions: technical training should be increased (more active, more software, more analysis of how-to create digital stories with children).
TR	29	Module 1a: **3** Module 1b: **2,8** Module 2: **2,9** Module 3: **3,3** Module 4: **3,1**	**2,1**	Positive comments on the duration and the content of the training program. Some teachers reported it would be more appropriate to include more practical sessions to gain experience in developing DST projects.

As a summary, we can state that the training was perceived as useful. However, as mentioned above, a view shared by teachers across all the countries was that there could have been more focus on hands-on activities with the digital storytelling tools. This is something that the partners should address when carrying out similar activities in the future, and also when producing recommendations related to DST training.

After the training, the teachers who were going to be involved in the implementation of the educational experiments were also asked to fill in a self-assessment questionnaire related to their **perceived competences regarding the themes of the training**. They filled in the same questionnaire again after the DST activities implemented in their own kindergartens. The teacher questionnaires were analysed as part of RQ3 in the Research Report (IO2), and a significant increase was found in all four content dimensions that were examined: media literacy, DST, technical, and practical.

The partners discussed their **experiences from the training** in the mid-term project meeting (September 2017). Overall, the training was seen to have been successful and relevant. However, a view shared by nearly all partners (and reflected in the teacher feedback as well) was that there could have been more focus on the technical training.

3.3 Conclusions

To summarise, the following aspects can be identified as areas for further development in potential future trainings:

- It is necessary to put **plenty of focus on hands-on practice with the digital tools and apps** in order to familiarise the teachers with them and to enhance their sense of technological competence.

- It would be useful to **concretise the links between theory and practice** in the training course, for example by using different digital tools to illustrate the themes discussed in the theoretical part of the training.

- Overall, it might be useful to include **as much face-to-face training as possible** in the course, as it is often difficult to motivate the teachers to focus on online contents and/or individual work in the middle of their busy schedules.

4 ONLINE PLATFORM (IO4)

The fourth intellectual output was the *Online Platform*. The partner responsible for the output was Computer Learning. In the project plan, the following activities were defined for this output: *A1) Online platform design; A2) Online platform development; A3) Multimedia training modules online pills development;* and *A4) Platform management & content update.* All activities have been completed.

4.1 Developing and managing the platform (activities A1-A4)

The platform was developed by Computer Learning during the first months of the project. The platform was accessed via the public STORIES website. It contained an **internal part** that was further divided into two sub-sections – one for the project consortium to share documents and another for delivering the online materials related to the training course. Later, a **public section for project outcomes** was added to the project's public website.

The technical structure and elements of the platform met the **goals set in the project plan**. In particular it was designed according to:

- A private area, restricted to partners for work in progress during the elaboration of the IOs: documents sharing, training course, informal collaboration;

- A public area that serves to give access to the final outcomes developed in the IOs.

However, the use of the platform was not very active throughout the project (as already touched on in Section 3). During the final months of the project, the consortium has shared the final outputs on the platform in accordance with their final decisions on which documents and outputs would be made public and which would remain as internal working documents between the partners. One particular consideration was the extent to which the kindergartens' outputs would be made publicly available: the project plan foresaw the project sheets and a multimedia library of story artefacts to be shared on the website. When publishing these contents, the partners have ensured that the children's, teachers', and parents' wishes regarding their publication have been respected, and only those artefacts have been published that have been given permission to be made publicly available. Furthermore, as stated in the first Q&E Report regarding the teacher community, it has been difficult to motivate teachers to log onto a separate site with specific credentials. Instead, as already discussed in Section 3, the partners decided that it was a more fruitful approach to look into supporting the formation of a teacher community on existing social media channels, platforms, and events (see also Section 7).

Computer Learning also developed the **online training module** for the i-Theatre, and these video lectures video-based training content was implemented on the online platform as foreseen in the plan. The choice was to develop the contents in English (for international partners) and Italian.

The partners also **self-evaluated** the IO with a checklist consisting of six items (based on the project plan): whether the online platform included 1) a private area restricted to partners, 2) a public area open to everyone, and 3) an area for teachers; and whether 4) the private area included all internal documents and outputs, 5) the public area provided open access to the public outputs of the project, and 6) the structure of the platform was clear and easy to navigate. The items were assessed on a three-point scale (fully – partially – not at all). The first three criteria (different areas of the

platform) were assessed as being fully met by all responding partners. As to the three latter criteria, some partners assessed them being fully met while other assessed them as being partially met. Presumably this was due to the self-assessment being conducted slightly before the deadline of all final outputs, which meant that not all material was available on the platform yet.

Pertaining to the final self-assessment item (clarity and navigation), PH-KA, who was the partner responsible for dissemination, also performed a **usability analysis** of the platform and the public website. Based on the evaluation, it was suggested that an updated website structure be implemented before making the final outputs available to the public. The updates aimed to make the outcomes easier for visitors to find and to hide such contents that would no longer be relevant after the project has ended.

4.2 Conclusions

Based on the above, we can make the following observations and suggestions for future efforts:

- Creating an active platform for teachers' interaction is difficult and cannot be forced. The threshold for teachers to join project-specific online platforms can be quite high.

- Therefore, to encourage the formation a teacher community, it may be more fruitful **to focus on existing platforms**, such as Facebook, where community building might happen more organically and/or **to provide alternative sign-in options** (e.g., the use of Google or Facebook credentials) for logging onto the platform, if a project-specific platform is built.

5 EDUCATIONAL EXPERIMENTS (IO5)

The fifth intellectual output was the implementation of *Educational Experiments*. The partner responsible for the output was MSGSU. In the project plan, the IO was foreseen to include the following activities: *A1) Scheduling of experimentation activities; A2) Experimentation of designed practices in schools; A3) Gathering of teachers' documentation;* and *A4) Realization of report of best practices / case studies.* All the activities have been completed, concurrently with research activities (IO2).

5.1 Carrying out the educational experiments (activities A1-A3)

Each partner country **recruited** kindergartens and groups/classes to participate in the educational experiments. The project proposal suggested a schedule where the participating children would be 48-60 months old and the experiments would be organised in such a way that those children who participated in the first project year would continue also in the second project year. The goal was to allow the assessment of both single project activities and final assessment for both years. The partners discussed the setup in the first (December 2015) and second (May 2016) project meetings, and came to the conclusion that because of different possible constellations of groups in different countries and different kindergartens, it was necessary to expand the target to cover 3-to-6-year-old children.

Between January and June 2017, the **first cycle of experiments was implemented** in each partner country. As defined in the project plan, the teachers were free to perform the activities – also adapting their projects to emerging needs and contextual elements – under a non-intrusive supervision of the research team. The **second cycle** of experiments was implemented between September 2017 and June 2018. During both cycles, the partners provided support for the kindergartens when necessary and collected the products and documentation from them.

The project proposal originally set specific **quantitative indicators for the number of participants**: *at least 2-3 kindergartens per country*, which was estimated to correspond to *at least 20 kindergarten teachers per country (80 teachers overall) and at least 300 children per country (1200 children overall).* The feasibility of these goals was critically examined in the second project meeting (May 2016): due to different sizes of kindergartens and groups, the partners concluded that it was difficult to strictly define a certain minimum number of children per group/school (and thereby ensure that the predefined number of individual participants would be met). Therefore, it was decided (and later confirmed with the funding agency by the coordinator) that instead of basing the participation on the number of children, the primary goal would be based on the number of kindergartens (at least 3 per country) and the number of outputs produced.

Related to the volume of outputs, the proposal determined **quantitative indicators for the documentation** collected from the experimentations: *at least 6 observation grids filled in by researchers each country (3 for each experimentation cycle)* and *at least 6 diaries of observation drafted by researchers each country (3 for each cycle)*, and *at least 18 project sheets filled by teachers each country (3 projects each year for schools).* As described in Section 2, the observational instruments were replaced with Yearly Summaries, but the quantitative goal remained the same.

The final numbers of outputs corresponding to the **main quantitative indicators** in each country after both project cycles are presented in Table 6. We can see that the overall goals were met.

Table 6. Quantitative indicators in terms of documentation collected from participants

	Nr. of kindergartens/schools	Nr. of Project Sheets	Nr. of Yearly Summaries
DE	4	14	7
FI	4	37	18
IT	6	59	16
TR	4	36	12

The partners exchanged experiences from the first cycle of experiments in the fourth project meeting (September 2017). All partners shared the observation that both the teachers and the children had been very motivated and enthusiastic about the DST activities. However, the partners also identified some challenges with respect to keeping to the project plan. The main challenge was keeping the educational experiments systematic throughout the project and commensurable between individual kindergartens and different countries. This entails issues such as 1) a kindergarten, a group, and/or an individual teacher dropping out of the project due to practical constraints (moving to another kindergarten, taking leave of absence, etc.) or 2) lack of continuity if the composition of the group does not remain the same from spring to autumn, making it impossible to follow the process through both experimentation cycles. Furthermore, the required documentation had been experienced as time-consuming by the teachers.

As explained in Section 2, the partners responded to these observations by **altering the instruments slightly** between the first and second cycle in order to make the documentation less burdensome for the teachers. Furthermore, in the last two project meetings (April and August 2018), the partners discussed how to deal with the aforementioned challenges related to continuity in the analysis of the practices, as highlighted in the first Q&E Report. The partners concluded that statistical comparisons between the two project cycles would be made whenever feasible, but in cases where it was not possible due to too many changing factors between project years, the data from each year would be presented using more descriptive approaches.

5.2 Report of best practices (activity A4)

Each partner country selected two exemplary practices out of the DST projects carried out in their kindergartens. For this purpose, in the penultimate project meeting (April 2018), the partners formulated a set of selection criteria according to which the examples should be selected. The criteria addressed both process and product perspectives.

MSGSU, the partner responsible for IO5, collected the practices and compiled the Report on Best Educational Practices of Digital Storytelling in Early Childhood Education and Care, delivered in August 2018. The report consists of 1) a summary of the state of the art, 2) methodology, 3) findings specifying the main features of the selected practices from different perspectives, and 4) a conclusion synthesizing the main features and highlighting recommendations for carrying out such activities.

Finally, the partners **self-evaluated** the IO at the end of the project with a checklist consisting of seven items, addressing 1) the suitability of the *process* of the educational experiments, the adequacy of the 2) *number* and the *3) quality of the outputs* (digital stories and related documentation), and the *report of best practices* (whether it 4) covered the results exhaustively, 5) presented the process of experimentation in a replicable way, 6) supported practitioners in carrying

out DST in ECEC, and 7) included concrete examples for practitioners). The items were assessed on a three-point scale (fully – partially – not at all), and each responding partner assessed all seven criteria as having been fully met.

5.3 Conclusions

In light of both experimentation cycles, the following suggestions can be made (see also Section 2: *Research*, as these activities are closely intertwined):

- It is vital to encourage, support, and remind the teachers to **plan and document the experiments with the instruments** provided by the project.

- The teachers should be encouraged to **kick off the activities as soon after the training as possible** so that 1) the training contents are still fresh in their minds and 2) there is room for possible unexpected delays occurring during the process (such as sick leaves, shortage of staff, etc.) without the risk of running out of time with the last projects.

- It is important to **organize meetings with teachers** who will be participating in the second cycle of project implementation. This way, researchers can find an opportunity to share revised research instruments and second cycle implementation process with the teachers and discuss expectations, suggestions and concerns of the teachers for the second cycle of the project.

6 GUIDELINES ON THE USE OF DST (IO6)

The final intellectual output was the production of *Guidelines* on the use of DST in early childhood education. The partner responsible for the output was Coopselios. In the project plan, the IO has been defined to include the following activities: *A1) Guidelines concept; A2) Analysis of pedagogical documentation; A3) Analysis of research results; and A4) Drafting of the e-Guideline (multilingual and electronic version).* The activities are closely linked to those within IO2 (Research) and IO5 (Educational Experiments).

6.1 Preparing the guidelines (activities A1-A3)

In the penultimate project meeting (April 2018), the partners discussed the **concept** and structure of the guidelines. The main criteria the partners set for the guidelines were, on the one hand, that it should cover the achievements of the project as well as possible while, on the other hand, being readable and approachable to teachers. Based on these principles and the requirements defined in the project proposal (i.e., the guidelines should present the analysis of the **pedagogical documentation** and **research results**), the consortium defined the guidelines as a summary that highlights the key contents from each content-related output: Manual (IO1), Research (IO2), Training (IO3), and Educational Experiments (IO5). In order to ensure the approachability of the Guidelines, the partners decided that each chapter should be no more than 10 pages long.

6.2 Drafting of the guidelines (activity A4)

Each partner that was responsible for a specific intellectual output (UNIMORE for IO1, JYU for IO2, PH-KA for IO3, and MSGSU for IO5) sent a ten-page summary of their IO to the partner responsible for compiling the Guidelines (Coopselios). Coopselios integrated the chapters sent by individual partners, wrote additional introduction and conclusion chapters, and sent the draft back to the partners for comments. Each partner was responsible for translating the final version of the guidelines into their own language.

At the end of the project, the partners **self-evaluated** the IO with a checklist consisting of six items: whether the Guidelines 1) were openly available to everyone interested in the topic, 2) were available in all project languages, 3) covered the project process and outcomes exhaustively, 4) addressed all IOs produced in the project, 5) were reader-friendly, and 6) provided recommendations for practitioners interested in using DST. The items were assessed on a three-point scale (fully – partially – not at all), and according to each responding partner, all the aforementioned six criteria were fully met.

7 DISSEMINATION AND EXPLOITATION ACTIVITIES

While each of the previous sections focused on a specific Intellectual Output, the following two sections will deal with the project process and supporting activities. In this section, the focus is on the *Dissemination* and *Exploitation* activities carried out in the project. As these activities are closely related, they will be discussed side by side.

7.1 Dissemination and Exploitation activities

The project proposal defined the following outputs for dissemination and exploitation: 1) *a dissemination strategy plan and reports* (interim and final), 2) *promo kit and website and social profiles/forums*, 3) *exploitation plan and report*, and 4) *stakeholder map*.

The **dissemination and exploitation plans** were prepared at the beginning of the project by PH-KA and MSGSU, respectively, with other partners contributing with suggested national and transnational activities. The plans included the contents foreseen in the project proposal. Before the overall mid-term reporting of the project, the coordinator collected information from all partners regarding their national activities. After the second project year, PH-KA and MSGSU collected reports from each partner about their dissemination and exploitation activities. During the final months, partner-specific activity reports were collected again. At the end of the project, PH-KA and MSGSU delivered the final **dissemination and exploitation reports**. The first version of the Stakeholders Map, which demonstrates the initial planned exploitation activities by each partner, compiled by MSGSU with contributions from partners has been annexed to the Manual (IO1) as well. The final version of the Stakeholders Map, on the other hand, designed according to the performed exploitation activities by the official end of the project, has been annexed to the STORIES Exploitation Report, delivered by MSGSU at the end of the project.

PH-KA designed the **promo kit** defining the graphic identity of the project and collaborated with Computer Learning to develop the public **website** and **Facebook page**. The promo kit has served as a resource for the partners to refer to when preparing posters, flyers, presentations, and other material (a summary of principal promotional materials and key presentations can be found in the Dissemination Report). The website and the Facebook page, however, were not used very actively. Therefore, before the final project meeting (August 2018), PH-KA carried out a usability analysis of the website (see also Section 4) and suggested a modified structure that would enhance the usability of the website when it serves as a portal for discovering the project findings after the project. The partners discussed the website update in the final project meeting and made a plan of how to structure the public OER contents under different sections of the site. At the same time, it was decided that the Facebook page would be closed at the end of the project, as teachers in the partner countries prefer interacting in their existing networks.

The project proposal set the following **quantitative indicators** for the multiplier events: *at least 5 multiplier local events (2 in Italy), at least 30 participants (40 in Italy) in each local event, at least 2 international events, at least 10 local participants and 10 international participants in Berlin* event*, and *at least 50 local participants and 12 international participants in Trento* event.* For the teacher community and stakeholder network, respectively, the following indicators were suggested: *at least 80 teachers engaged and active in the online community* and *100 stakeholders total (25 each country).*

Table 7 summarises the dissemination and exploitation activities conducted by each partner. More detailed information about the activities has been collected separately.

Table 7. Dissemination and exploitation activities

	List of activities	**Number of participants**
DE	- Presentations on two local events at the PH Karlsruhe for ECEC-institutions - Presentations on two conferences - Presentation on an event for ECE practitioners	approx. 15 + 100 participants approx. 50 + 70 participants 12 participants
FI	- Two local dissemination events - Poster at a national conference + online - Presentation at a national conference - Presentation at an international conference - Poster in several university events - Additional DST training in three new kindergartens after requests* - Information letter to parents	- Local events: 42 + 21. - Other events: 300+ Results to be used to inform city-level ECEC ICT pedagogical strategy. Valorisation after the project: Project materials to be integrated as part of a national in-service training programme between September 2018 and December 2019 (organised in 10 cities, targeting 1500 teachers).
IT	27th Eecera annual conference August 2017, Bologna	Among 30 Practitioners, field experts, scholar were present at the presentation
TR	- Local multiplier event: Local multiplier event was organized to introduce the project to different stakeholders such as schools, national public bodies and non-governmental organizations. (October 2016) - In addition to the first cycle of DST training for participant teachers, which is conducted in August 2016, two additional DST training cycles for the teachers of kindergartens, who subsequently participated in the STORIES project implementation process (conducted in December 2016 and October 2017) - A DST Atelier for Children was established in the university building of MSGSU. - A new course entitled Digital Story Telling Approach and Applications was offered as an elective course for students of the faculty. - DST approach has been integrated as an additional topic to the current courses of “Theories and Approaches in Learning Psychology”, “Instructional Principles and Methods”, “Instructional Technologies and Material Design” and “Introduction to Multicultural Education”, which are offered to approximately 300 prospective teachers attending Turkey Certificate Program of Pedagogical Formation for Teachers in 2016-2017 and 2017-2018 academic years. -Information and Consent form for parents.	- Local multiplier event: 65 participants (Representative from Basic Education General Directorate of Ministry of National Education, General secretary of European Union and Foreign Relations Office, representatives from Association for the Development of Early Childhood Education of Turkey, Mother Child Education Foundation, The Hope Foundation for Children with Cancer, Science Heroes Association, and Turkish Private Schools Association, representatives from Rahmi Koç Museum and Children's Museum Association, Academic staff from six different universities which have relevant departments, and kindergarten and primary school teachers and deans of 12 other schools attended the meeting.) - New elective course on DST Approach and Applications: offered to 50 undergraduate and graduate students of MSGSU - Additional topic to the current courses: offered to approximately 300 prospective teachers attending Turkey Certificate Program of Pedagogical Formation for Teachers - Information and Consent form for parents: collected from the parents of all participant children from Turkey, informing the parents about the aim and implementation process of STORIES project.

Some **changes** have been made to the original plan regarding the international events. Firstly, due to the third partner meeting not being held in Turkey, the final meeting at the end of the project was held in Istanbul instead of Trento. Secondly, the Berlin event foreseen to take place in conjunction

with Online Educa Berlin 2017 was replaced by partners' presentations in other international conferences (e.g. EECERA 2017, CHILDHOOD 2018), as the theme and target group of the 2017 conference were not deemed relevant from the ECEC perspective. Our own assessment is that the rationales for these changes were well justifiable and the changes did not affect the project flow in any way.

Table 8 presents the **external evaluator's** suggestions regarding dissemination and exploitation, respectively, and responses as to how to the suggestions have been addressed.

Table 8. Addressing external evaluator's comments regarding dissemination and exploitation

External Evaluator's suggestions regarding dissemination	**Addressing the suggestions**
Definition of some dissemination activities targeting **children and families**. This could add further value and coherence between the dissemination activities and the target groups of the project.	The main focus is on the teachers, but children and families have been addressed within the scope of our resources, e.g. with leaflets disseminated to parents in conjunction with the project activities. The partners wrote down their activities in the dissemination table.
Collecting adequate information at regular intervals about **local dissemination activities**. To this end, each partner should define in its local strategy how the activities will be backed up by information collected.	The collected information is documented in the dissemination report.
External Evaluator's suggestions regarding exploitation	**Addressing the suggestions**
Strengthening the **strategy for local adoption of the products** after the end of the project. Concrete steps should be developed in order to ensure the valorisation of the outcomes.	The overall steps for local adoption include: - distributing the products to different kindergartens and national public bodies - using the research results and concrete products as training material both in initial teacher education and in in-service training - using existing research data as a basis for student project and theses Each partner is responsible for realising the general adoption strategy in practice on a national level.
Considering the possible need for **a more proactive/ad hoc approach** beyond the planned dissemination and exploitation actions in order to mainstream the outputs to groups less closely involved in the project activities.	Each partner has implemented ad-hoc activities, such as: - Organising additional training workshops in new kindergartens and new cities upon requests - Embedding training materials and research results into broader teacher training / in-service training programmes that take place after the project

One issue mentioned in the first Q&E Report was that the consortium would need to discuss the **coordination of national and transnational academic dissemination activities** (such as the production separate/joint publications or conference presentations) between the partners when the project proceeds to the phase where final results are being communicated. As explained in Section 2, the partners made a publication plan in the final project meeting. It was decided that the consortium would jointly work on two major manuscripts (and a potential third one), in addition to which each partner could decide what to publish base on national data.

7.2 Conclusions

Based on our experience, the following suggestions can be made related to successful dissemination and exploitation:

- In addition to following the pre-established activities and goals to a relevant extent (e.g. aiming for the quantitative objectives for different outputs and audience sizes), it is important to **constantly proactively identify ad-hoc dissemination/exploitation opportunities** that can add value to the project.

8 MANAGEMENT AND QUALITY & EVALUATION

The focus of this section is on the activities related to *Management* and *Quality and Evaluation*. Similarly as Dissemination and Exploitation, these activities are intertwined and therefore examined together in the same section.

8.1 Management and Quality-and-Evaluation activities

With regard to management and Q&E, the project proposal established the following outputs: 1) *partners' agreements*, 2) *project work plan*, 3) *management reports* (collected biannually), 4) *project management online tool*, and 5) *quality and evaluation plan and reports* (interim and final).

At the beginning of the project, the coordinator Coopselios provided the official **agreement documents** to the partners and prepared a **Gantt chart for monitoring the overall workflow** of the project. JYU, as the Q&E leader, prepared a **quality and evaluation plan** based on the Q&E activities foreseen in the project plan. An **interim Q&E report** was drafted by JYU and finalised with all partners' contributions in late 2017. The report was produced slightly later than foreseen (after two project years rather than exactly halfway through the project) which, on the other hand, allowed it to cover the first project cycle in full. Coopselios collected **management reports** from partners during the project (albeit slightly less frequently than biannually)**:** cost certification reports have been collected after each project year and a content report at the halfway point.

The **project management online tool** was developed as an internal section of the project website to ensure smooth communication among the partners and to allow efficient collaborative work. The structure of the section was presented by Computer Learning and discussed by the partners in the second project meeting (May 2016). The online tool allowed sharing documents and establishing deadline dates. However, after the initial implementation the online tool was somewhat inactive, and the partners mainly used other tools for collaboration. This was mainly due to the work-in-progress nature of many of the documents the partners were sharing (such as different plans, research instruments, and data sets): for this purpose, the partners principally used Google Drive (because it allows real-time editing) and email. During the final months of the project, the partners used the online tool to upload all the products and documentation related to the educational experiments. It also serves as a repository of the final versions of reports and other project outputs, some of which are public and some internal. Email communication worked well for the most part; however, setting up a centrally managed email list might have made it more efficient and less error-prone (e.g., avoiding a recipient being left out by accident when sending email, or ensuring that also newly joined team members receive all communication).

So far, the consortium has had four **partner meetings**, as follows:

- **M1**: Hosted by Coopselios as planned. The agenda followed the outline envisioned in the project plan.

- **M2**: Hosted by JYU as planned. The agenda followed the outline envisioned in the project plan.

- **M3**: Hosted by PH-KA instead of MSGSU. The agenda followed closely the outline envisioned in the project plan, with major focus on finalising the research design and

instruments. As teacher training was still ongoing in all countries, the meeting did not yet close that phase.

- **M4**: An extra meeting hosted by Coopselios. This meeting was not foreseen in the project plan; it was added as the partners agreed that it was necessary to have a meeting to wrap up the first project cycle and to prepare for the second one. The focus of the meeting was on sharing experiences from training, research, and educational experiments.

- **M5**: Hosted by PH-KA. The second research and experimentation cycle was still partially ongoing at the time of the meeting, which is why the meeting did not completely wrap up the research phase. The meeting was also not held in conjunction with Online Educa Berlin (see Section 7). Otherwise the agenda mainly followed the outline envisioned in the project proposal: the latest draft of the Research Report was discussed and responsibilities for analysis were distributed between partners. The structure and contents of the Report on Best Educational Practices were discussed, as well as the overall requirements for the Guidelines. Deadlines for the activities for the remaining project months were established.

- **M6**: Final meeting hosted by MSGSU instead of CL. As the third meeting was not organised by MSGSU, the final meeting was held in Istanbul. The project plan foresaw the final meeting to be combined with an international multiplier event in Trento, but this did not take place. The final meeting served as the finalisation of the project IOs, as anticipated in the project proposal. The results of each IO were presented by the partner responsible for it, and the work remaining until the end of the project was divided between partners.

One part of Q&E activities is **external evaluation**. Coopselios identified an external evaluator during the first months of the project; however, due to changes in circumstances, the originally assigned evaluator was replaced some months later. Halfway through the project, the external evaluator reviewed the project documentation and outputs produced so far. After the end of the project, the external evaluator conducted a second evaluation, including an evaluation questionnaire for the partners.

Table 9 presents the external evaluator's suggestions regarding quality and evaluation in his first report, and responses to the suggestions.

Table 8. Addressing external evaluator's comments regarding quality and evaluation

External Evaluator's suggestions regarding Q&E	Addressing the suggestions
More specific definition of the **indicators**, especially qualitative ones, that are to be used to evaluate certain IOs and activities. More specifically, the external evaluator suggested reviewing and possibly adapting the indicators in order to make them more easily measurable.	The issue was discussed in the fourth and fifth project meeting (September 2017, April 2018). The qualitative indicators are discussed in Section 9.
Identifying **synergies** between the various evaluation tools (such as checklists, questionnaires, project sheets) and the Q&E data to be collected. In particular, this was suggested in order to avoid increasing the partners' workload.	A suggestion of how to make use of the already existing material was presented in the fourth project meeting. The external evaluator's suggestions have been applied in the compilation of the Q&E reports: JYU has made a first draft based on existing material and collected additional data from the partners where necessary.

8.2 Conclusions

We can identify the following suggestions related to management and quality and evaluation:

- It is important that the **management and communication tools** allow different types of needs within collaborative work (including synchronous and asynchronous collaboration, sharing of final products, efficient communication of timelines and deadlines, etc.), and that each tool is as user-friendly and effortless as possible with respect to the specific type of working it aims to support.

- It is worth devising such a strategy for Q&E that takes into account the **synergies between already existing material** from the perspective of providing material for Q&E evaluation. This can be complemented with **identifying opportunities for ad hoc Q&E activities** (e.g. obtaining feedback from relevant stakeholders, such as the CoRe Report author).

9 QUALITATIVE INDICATORS AND LESSONS LEARNED

The final section focuses on the final assessment of the qualitative indicators outlined in the project proposal as well as the main lessons learned for future projects with a similar type of scope and approach. In order to avoid overlap with the external evaluator's work, the lessons learned are discussed on a fairly general level here.

9.1 Qualitative indicators

The project proposal suggested four preliminary qualitative indicators for the project outcomes:

- *Good practice cases (IO6 - e-Guidelines) developed during the project will demonstrate ECEC teachers in Europe how DST can be integrated in schools activities.*
- *ECEC teachers and stakeholders will receive a broader overview on DST and will be made aware on the educational opportunities DST is offering them.*
- *Online open platform and OER course to make the developed and quality assessed products available to a wider audience for free in English, German, Italian, Finnish and Turkish.*
- *Recommendations will raise policy-makers' awareness of new policies for quality in ECEC.*

In the first external evaluation report, the external evaluator suggested reviewing and possibly adapting the indicators in order to make them more concrete and easily measurable. To this end, we can reformulate the indicators as follows – each indicator referring to a specific group of stakeholders. Below each reformulated indicator is a qualitative assessment of the extent to which this goal was met.

*1. The **practitioner-oriented** materials published online (including the Guidelines publication, good practice cases, and the digital stories) will provide a comprehensive overview of DST, demonstrate ECEC teachers in Europe how DST can be integrated in school activities, and support their awareness of the pedagogical potential of DST.*

The guidelines and other materials shared online provide a versatile and comprehensive understanding of DST in the kindergarten/preschool. First, the Guidelines start with a concise summary of the theoretical underpinnings, which helps practitioners situate DST in a **broader pedagogical contex**t in ECEC. Second, the research results summarised in the Guidelines help **understand the use of DST** from several angles: elements of the product and the process, the role played by teachers' competences, as well as the role of DST for children's agency, creativity, and social-emotional development. The process-related **best practices** further concretise these opportunities by providing recommendations for implementing DST projects.

Second, in addition to the guidelines, the practitioners also have access to most of the actual **digital artefacts** produced in the kindergartens during the STORIES activities. The combination of written material and the concrete story examples makes it easier for the teachers to apply the findings in their own work. The story gallery provides them with examples of products made with different applications and devices.

Third, the Guidelines are available for free in **English** as well as in the **national languages** of the project partners (German, Italian, Finnish and Turkish). The published digital stories are available in the languages in which they have originally been produced, in addition to which two best practice examples from each country have been subtitled in English. This way, teachers in each country can both peruse a broad range of examples in their own language and draw upon stories from other countries for additional inspiration.

At the end of the project, the materials are **available online** for anyone to use and the partners have spread information in their networks. However, in order to reach wide audiences – and especially from countries not involved in the project – the **process of promoting** the materials will have to reach beyond the project lifetime. For the exploitation report, each partner has specified some key channels for making use of the outcomes after the project. In terms of transnational distribution and promotion, collaboration with the funding agency is key.

*2. The **scientific community** will benefit from empirical research results based on DST activities implemented in authentic contexts in different countries. The results will significantly contribute to the body of research related to digital storytelling and media education in ECEC.*

As stated above, the empirical research conducted in the project approached DST from **several angles**, including the perspectives of product, process, teacher competencies, and children's learning (agency, creativity, and social-emotional development). The extensive data collection was based on educational projects implemented in **authentic contexts**, and it employed a mixed-methods approach yielding 1) large **transnational data sets** lending themselves to quantitative analysis pertaining to the shared research questions and 2) **in-depth data collected from individual countries**, allowing further qualitative analysis pertaining to partner-specific questions.

During the project lifetime, individual partners have written **articles** and given **presentations** on the project on academic forums, presenting preliminary results and the project process (see Section 7). As discussed in Section 2, the transnational data collection and the aggregation of the whole data set was somewhat delayed, which left the consortium with very limited time for data analysis, reporting, and publication. Therefore, the partners decided that during the project lifetime, they would focus on producing an extensive and detailed internal **research report**, which would provide an easily applicable basis for producing **journal paper manuscripts** after the end of the project. Apart from the results, the research report specifies the research process (including the methods, participants, and instruments) and maps each research question to relevant theoretical background and previous research, thereby indicating the existing body of research to which the STORIES results contribute. Based on the research report contents, the partners specified manuscript topics and the partner(s) responsible for each of them (see Section 2). The manuscripts are to be submitted in early 2019, and depending on the review processes, published in journals between the latter half of 2019 and the first half of 2020. In addition to the joint papers, each partner is expected to publish about results based on their national data.

*3. The project outcomes will enhance **policy makers'** awareness of how ECEC institutions can implement new policies for the innovative use of digital technologies in pedagogically meaningful ways, and support the translation of general policy objectives into concrete practices.*

The pedagogical use of digital technology on different educational levels is highlighted in both national and European policy documents and frameworks. These policies relate to the development of both children's (e.g., national ECEC curricula) and teachers' (e.g. the European DigCompEdu framework) competences. In primary and secondary education, the use of digital tools in learning has already become an established practice. In ECEC, however, the focus on digital competences and media literacy is a more recent development, which means that in many cases, practice is still not quite abreast with the policy-level demands.

Our assessment is that the outcomes of the STORIES project facilitate **bridging the gap between policy objectives and their implementation in the field.** The project has provided empirically based **guidelines** and **concrete examples** of products and processes that have been implemented in authentic kindergarten settings, following a research-based project framework.

As one concrete example, the Finnish National Agency for Education – which is responsible for national curriculum development in Finland – has different instruments to support the implementation of curricula. For example, the agency develops and shares practice-oriented supporting materials online and funds many in-service training programmes each year. One major way of valorising the STORIES outcomes is integrating the findings and outputs to the contents of large-scale **in-service training programmes**, through which they will directly impact the implementation of curricula (see Section 7.1 and the Exploitation Report).

In addition to in-service training, the outputs will be valorised in the implementation of **pre-service teacher education curricula** in the partner universities. The project has provided teacher training institutes with new tools for reaching curricular objectives related to enhancing future kindergarten teachers' awareness of the use of digital pedagogy. Especially the experiences from the STORIES training (IO3) have increased teacher trainers' understanding of what aspects need more emphasis in digital pedagogy education.

Digitalisation is increasingly emphasised also in **local education policies**. Already during the project, the STORIES DST approach has been extended beyond the cities/regions directly involved in the project activities. For example, in Finland, additional training was requested with the purpose of supporting and informing a citywide service digitalisation programme in the city of Tampere.

Thus, our assessment is that in terms of local and national level, the goals for policy-related exploitation and valorisation of the project outcomes have been met. Naturally, the long-term impact of the efforts initiated during the project lifetime can be fully assessed only after some time, but the groundwork laid before the end of the project suggests that there are good prospects for genuine impact.

On a **European level**, effort should still be made after the project to ensure that all the outcomes reach both practitioners and policymakers beyond the partner countries. As mentioned above in conjunction with practitioner-oriented valorisation, collaboration with the funding agency is important in achieving this.

9.2 Lessons learned

We will conclude the Q&E Report by summarising some of the main lessons learned during the project. The points below reflect both most successful and most challenging aspects of the project. They can be considered by the partners when planning and implementing future projects with a somewhat similar scope and approach.

1. **Research design.** Devising the concrete research plans (i.e., research design, questions, instruments, timelines) was a long process during the first project year but it was worth putting in the effort. We can extract some recommendations for future projects.

    a. The **research questions** were reiterated several times, and according to our assessment, the final version of the questions is very meaningful both from a theoretical and practical perspective. In our experience it was a good solution to define a set of *shared questions* to be answered based on transnational data and another set of *partner-specific questions* that allowed each partner to pursue topics particularly relevant to them.

    b. The **research instruments** were revised between the two project cycles, with the aim of making them less time-consuming for the teachers. As a guideline for future projects, it would be useful to strive for *lighter documentation* demanded from the teachers.

    c. The overall **research approach**, which was based on the principle of *design-based research* cycles, was suitable for this type of project. We suggest a similar type of design also for future projects, as it allows for revision and adjustments after the first cycle. In the case of this project, it was necessary to revise the instruments, adjust the timeline for the second cycle, and reconsider the extent to which it was possible to compare data from the two cycles (see below).

2. **Field experiments.** The field experiments yielded a large set of data, with which we can be very satisfied. However, there were some practical challenges that require attention in future efforts.

    a. The group of **participants** changed more than expected between the two experimentation cycles. There were changes on several levels: kindergartens not continuing activities for the second year, teachers not continuing the activities after the first year (due to moving to another kindergarten), teachers having a different group of children for the second cycle (due to moving to a different group within the same kindergarten), or children not continuing for both years (due to moving to another kindergarten/group). It is useful to *foresee continuity challenges* already in the project proposal by specifying the research process adequately openly, leaving room for adjustments. As stated above, a *design-based research* approach is a good solution for anticipating such changes.

    b. The overall **set of material** produced during the experiments was extensive and it lends itself to versatile analysis and further use in many ways. There were some *challenges with continuity*, however. Some were directly related to the changes in participants, but even when the participants remained the same, not all groups managed to meet the goal of three consecutive projects per group (for example, some produced fewer projects and some worked on several projects simultaneously). This challenge can also be foreseen with the aid of a more *open-ended research design*. The researchers can aim to steer the activities into the required format by asking the teachers to follow a more rigorous

timeline – but even so, there is a risk that the schedules will not hold due to unexpected circumstances in the kindergartens.

3. **Training.** The training was relevant and useful, but some recommendations can be given for its future applications.

    a. The **overall structure** of the training was successful. The framework gave the partners a unified ground on which to build their country-specific implementations of the training, while at the same time leaving enough room for localisation. We can recommend a similar approach also for future projects.

    b. The **contents** of the training were experienced as relevant by the participants, but based on the feedback received, there was a need for adjusting the emphases of different modules. Based on this project, we suggest putting more emphasis on *concrete experimentation* with the digital tools and applications. However, as each project and each set of participants is different, we might also suggest that a quick *preliminary exploration of the specific needs* of that particular group of participants be made before designing the course contents.

    c. As to the **delivery methods** of the course, face-to-face training and hands-on instruction were strongly preferred over independent online learning in the case of this training course. For projects to be implemented in the near future, we suggest including as much *face-to-face* activity as possible, and making these sessions *dialogical and conversational*. However, as *online learning becomes more and more familiar* also to ECEC educators, it is likely that the attitudes towards it will gradually become more favourable.

4. **Timelines and communication.** One of the most challenging aspects in the project was the estimation and establishment of realistic timelines, and keeping to the deadlines that were established.

    a. Many of the timeline-related challenges stemmed from **delays in the field experiments**. We can suggest that the consortium establish clear, shared procedures on *what to do in case there is a risk of significant delay* in some kindergarten/group: for example, how long to wait for the final products and when to make the decision that the pending products would no longer be able to be included in the final data set. This is also related to point 2b above: if the *target number of products* is more loosely formulated, it is less critical if the activities of a group are delayed.

    b. In some cases, there also appeared to be some **lack of clarity** about the timelines and the overall status of work. As each partner was focused on carrying out and supporting the field activities in their own country, there were sometimes long periods without regular checkpoints to form an overview of the whole situation. Therefore, for future projects, we can recommend a *communication schedule with more frequent checkpoints* (e.g. brief Skype calls to exchange the status of activities and discuss topical issues emerging from the field activities).

5. **Community building.** The final point is related to the challenges encountered with respect to building teacher communities.

a. Arguably the most difficult goal to achieve was the **teacher community**. When directly assessing the final situation against the targets set in the project proposal, the outcome falls short of the objective. In hindsight we can say that building a new active, project-specific forum or community for the participating teachers was probably not a realistic goal: this started to become evident during the training phase when we saw that online learning was experienced as less attractive than face-to-face training. Thus, for future projects we recommend that already from the start, the principal strategy for community building should be based on *taking advantage of existing communities* (such as teachers' Facebook groups) instead of attempting to establish a new one from scratch. From there, it is then easier to start *a separate, more focused spin-off group later* if the topic seems to garner enough interest organically.

b. However, while we can assume this approach to be efficient on a national level, building a **transnational community** is even more difficult as the threshold for communicating in English can be quite high for many teachers. To encourage transnational collaboration, it is worth deliberately putting effort on *increasing the teachers' awareness of existing European instruments* aimed for teachers (such as eTwinning), show them examples of joint projects implemented with support of these instruments, and encourage them to join such activities by highlighting the fact that they can start with very small-scale projects.

In summary, we can say that the STORIES project produced a large amount of valuable data and results on DST in ECEC that can be – and already have been – valorised from the perspectives of practice, research, and policy alike. At the same time, the project provided information and guidelines on suitable research, experimentation, and training approaches in the context of DST in kindergartens. The most significant shortcomings were related to delays in the timelines of the activities and the effort of building a teacher community around the project theme. Above, we have presented suggestions as to how to address these challenges in future projects.