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in the field of Scientific
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- COST -

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Brussels, 14 November 2014

COST 110/14

MEMORANDUM OF UNDERSTANDING

Subject :   Memorandum of Understanding for the implementation of a European Concerted
Research Action designated as COST Action IS1410: The digital literacy and
multimodal practices of young children (DigiLitEY)

Delegations will find attached the Memorandum of Understanding for COST Action IS1410 as
approved by the COST Committee of Senior Officials (CSO) at its 191th meeting on 12-13
November 2014.

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MEMORANDUM OF UNDERSTANDING

For the implementation of a European Concerted Research Action designated as

COST Action IS1410
THE DIGITAL LITERACY AND MULTIMODAL PRACTICES OF YOUNG CHILDREN
(**DigiLitEY**)

The Parties to this Memorandum of Understanding, declaring their common intention to participate in the concerted Action referred to above and described in the technical Annex to the Memorandum, have reached the following understanding:

1. The Action will be carried out in accordance with the provisions of document COST 4114/13 "COST Action Management" and document 4112/13 "Rules for Participation in and Implementation of COST Activities", or in any new document amending or replacing them, the contents of which the Parties are fully aware of.

2. The main objective of the Action is to create an interdisciplinary network that will advance understanding of young children's digital literacy and multimodal practices in the new media age and which will build a co-ordinated European agenda for future research in this area.

3. The economic dimension of the activities carried out under the Action has been estimated, on the basis of information available during the planning of the Action, at EUR 92 million in 2014 prices.

4. The Memorandum of Understanding will take effect on being accepted by at least five Parties.

5. The Memorandum of Understanding will remain in force for a period of 4 years, calculated from the date of the first meeting of the Management Committee, unless the duration of the Action is modified according to the provisions of Section *2. Changes to a COST Action* in the document COST 4114/13.

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A. ABSTRACT AND KEYWORDS

The ability to negotiate digital forms of literacy carries high stakes for life destinations but in early childhood education, literacy still tends to be approached as predominantly print-based. The technologies through which children now engage with all forms of knowledge are constantly changing with the widespread use of an array of digital, interactive, converged and personalised devices. These are transforming the skills and literacies needed by even the youngest children to be competent actors in the world while, at the same time, challenging the efforts of parents and teachers to support their learning. The development of relevant skills and knowledge for reading and writing contemporary texts is crucial for educational, economic, social and cultural progress in Europe. The proposed Action will create an interdisciplinary network to examine how young children's literacy development is being shaped by changes brought about by the digitisation of communication. The Action will enable researchers across COST countries collectively to synthesise existing research and identify gaps in knowledge, thus avoiding duplication, fostering innovative avenues for future research and more effectively advancing knowledge in this area. The Action will also build capacity by facilitating systematic exchange between established and early stage researchers across the network.

Keywords: digital literacy, early childhood, multimodality, media literacy, new technologies

B. BACKGROUND

B.1 General background

The changes that have taken place in the communication landscape over the last decades through technological developments have led to a paradigm shift that is as significant as the paradigm shifts that took place through the inventions of writing and the printing press in previous eras (Kress, 2003). This paradigm shift has led to concomitant changes in social and cultural values and everyday practices across all walks of life. These developments have profound implications for early literacy development, and young children should be viewed as emerging specialists in design and communication, who use a range of modes (such as words, images and sound) with a variety of literacy tools, both traditional and digital, from their first months of life.

Furthermore, given the increasing mobility of technologies such as smart phones, tablets and wearable technologies, texts are produced and read across a range of spaces and involve a variety of networks,

and this has brought about significant changes in everyday literacy practices. The implications of this dynamic change for young children have not been examined in depth. By contrast with the situation for adults or even teenagers, comparatively little is known about the potential of mobile devices for early learning, or the challenges of online navigation for young children and their critical evaluation of search results, or of their ability to identify the commercial or persuasive intent of specific texts, amongst many other issues that are key to communication in the digital age. Children increasingly engage with learning embedded in games, interactive tools and apps on personalised (not shared) platforms and with texts that are primarily commercial and entertainment-oriented rather than overtly 'educational' texts. This has important implications for development and learning.

The fast pace of technological change brings a pressing demand for unified research networks to examine and respond flexibly to the learning potential of both existing and emerging communicative technologies, such as wearable technologies, 3D printers, robots, augmented reality apps, toys and games and relevant aspects of the Internet of Things, and to examine related social, cultural and digital literacy practices related to these. This agenda should attend to key underlying principles as well as examining specific technologies, given the fast-changing nature of the field. The 2013 EU High Level Literacy Group's report recommended that challenges relating to digital literacy at all levels of education must now be addressed if literacy levels across Europe are to be sufficient, let alone competitive. There is an urgent need for the development of a unified research agenda in this area (Erstad and Amdam, 2013). This COST Action will take forward some of the EU High Level Literacy Group's recommendations in a timely fashion and will report on outcomes for policy and early childhood practice, with the aim of enabling educational provision in both formal (e.g. kindergarten, schools) and informal settings (e.g. museums, libraries, civic centres) to respond to the challenges and potentials of digital and mobile communication.

This Action focuses on children aged from birth to eight, an age group for which there has been comparatively little research in this area (Grimes and Fields, 2012; Holloway, Green & Livingstone, 2013). The early years provide crucial foundations for lifelong literacy learning, therefore it is important to ensure early education policy and practice across COST countries are developed in order to equip our youngest citizens with the skills and knowledge needed in a digitally-mediated era. Across Europe, there is currently a paucity of research data on the extent, range and potency of young children's engagement with new media devices in homes and communities and the data available is concentrated in a few countries. The Action will address this gap in knowledge by building a framework for collaborative research teams to share expertise and develop coordinated research agendas.

The proposed Action involves participants from a wide range of disciplines including: Applied

Linguistics; Childhood Studies; Children's Literature; Computer Science; Cultural Studies; Early Childhood Education; Information Studies; Language and Literature; Media Studies; Psychology; Sociological Studies. This interdisciplinary approach is essential to the construction of knowledge in this area. The Action will integrate the interdisciplinary and cross-cultural approaches of its members to produce a series of themed research insights into the complex nature of contemporary early literacy practices in COST countries, which is a necessary approach if we are to understand fully the dynamic nature of communication in the digital age. The Action will also identify new methodologies for working with young children and provide a theoretical framework that captures the digital literacy experiences of the whole child (at home, school, library, kindergarten and so on) in a holistic and ethical manner. COST promotes flexibility, so that if disciplinary concerns that were not considered in the development stage become pertinent to the Action, they can be incorporated into subsequent activities.

COST is considered to be the most appropriate framework for the activities proposed in this Action, as it will enable the development of a network of interdisciplinary researchers at various stages in their careers. This will be a new network and it will not replicate existing networks. The value of COST is that it enables the building of capacity for future research across Europe. The activity of this Action will allow identification of key areas that require further research, fostering systematic, international co-ordination and knowledge exchange. Through this process, projects will be defined and developed collaboratively, ensuring that interdisciplinary and cross-cultural networks, including experienced and Early Stage Researchers (ESRs), are better placed to bid for European research funding through other instruments, hence avoiding duplication of future research activity within separate countries.

B.2 Current state of knowledge

Research has identified the ubiquitous nature of new technology in young lives and explored related practices. Children aged from birth to eight have access to and use a wide variety of technologies from birth (Marci-Boehncke & Rath, 2013; Marsh et al.2005; Plowman, Stevenson, Stephen & McPake, 2012; Rideout, 2013; Vinter, 2013). Over the past five to six years, there has been a substantial increase in internet use by the under-eights (although this is not uniform across countries), and even if they do not use the internet, children may have well-established digital footprints, created by family members (Holloway et al., 2013). Many children access online sites or apps to play games, watch videos, visit virtual worlds and also they use sites and apps related to popular television programmes and popular literature (Burke and Marsh, 2013; Holloway et al., 2013; Marci-Boehncke

and Rath 2013). Children engage online with other users who are both known and unknown to them in their everyday lives (Burke and Marsh, 2013; Siibak & Vinter, 2010), and in some families whose members are geographically dispersed, children from the first months of life communicate with family members using video calls (such as Facetime and Skype) (Kelly, 2013).

A second area of focus has examined digital literacy skills development and the role of parents, kindergartens and schools in this process. Children are engaged in reading, writing and multimodal authoring/design across a range of screen-based media in homes and communities, although there are differences in families due to socio-economic status and family histories (Plowman et al., 2012). In this use, children draw upon their interactions with digital texts and develop strategies to make sense of a variety of symbolic representations, including print, and vice versa (Flewitt, 2012; Levy, 2009; Yamada-Rice, 2013). Well-designed tools can facilitate children's learning, such as e-books, which can support children's understanding of stories and story language (Smeets, Van Dijken and Bus, 2012). Children's engagement with age-appropriate apps on tablets can extend their knowledge and skills in multimodal communication (Kucirkova, 2013). Family members support children's interaction with technologies in a range of ways, scaffolding interaction with games, sites and apps and guiding acquisition of technical skills (Plowman et al., 2012). In kindergartens and schools, effective pedagogy and curricula for the development of children's digital literacy skills in the early years are distinguished by an emphasis on play, collaboration, creativity and the co-construction of knowledge (Levy et al., 2012; Siibak & Vinter, 2010). Early years teachers need professional development in this area in order to support their pedagogical practice (Arrow and Finch, 2013; European Schoolnet, 2011).

A third focus for research has been the social and cultural value of children's digital literacy practices and the impact of the online/ offline dynamic on this area. Young children's play with new technologies is important for enabling them to rehearse the social practices of digital literacy in the wider world (Medina and Wohlwend, 2014). Young children construct and perform online identities drawing on their offline resources, yet this does not always equip them for the environments and experiences they meet in online social networks (Burke and Marsh, 2013). There is an increasing synergy between children's online and offline digital literacy practices, with the growing proliferation of apps and toys that make use of this dynamic, such as those that embed augmented reality (Marsh and Bishop, 2014).

Finally, a number of studies have identified the lack of attention to the digital literacy practices of young children in national policies. Although literacy is defined internationally as 'the ability to identify, understand, interpret, create, communicate, compute and use printed and written materials associated with varying contexts' (UNESCO, 2013), which does not privilege any specific mode,

national curricula tend to continue to define early literacy in terms of learning alphabetic code (Flewitt, 2012; Holloway et al., 2003).

European work in this area is world-leading and internationally recognised, but there is a need to develop multi-disciplinary approaches to these vital areas of research. New knowledge is required on a range of issues, including young children's access to and use of smartphones and tablet computers in homes and community spaces across Europe, and the way in which families support children's engagement in wider social networks through digital media environments. In addition, empirical work is required in relation to the role of computer games in promoting literacy learning for this age group, building on the work that has been undertaken with older students (e.g. Apperley and Walsh, 2012; Wastiau, Kearney and Van den Berghe, 2009) and on the way in which new forms of creation in a multimedia world, such as computer coding, can be supported in early years education. Research is also needed into the experiences of multilingual children, children with learning difficulties and children for whom education is disrupted due to migration or periods in care. Finally, given the rapidly changing nature of technologies, knowledge is required of the impact of emerging and future technological developments on practices across homes, community spaces (such as museums, libraries and civic spaces), kindergartens and schools. Evidence-based-policy development is necessary in relation to all of these environments.

B.3 Reasons for the Action

The need to address the issues identified above is becoming more urgent as technological developments continue to challenge the boundaries between traditional and 'new' literacy practices. Proponents of this Action consider it vital to develop a concerted and coherent research agenda across Europe to meet the societal and economic challenges of the decades ahead and to promote more equitable access to the literacy resources of a digitally mediated community. The Action will increase capacity to undertake collaborative research and will address the diverse needs across COST countries in East, North, South and West Europe. The Action will impact on policy and practice with regard to parents' and carers' knowledge of and engagement with children's digital literacy practices and in relation to formal and informal education in kindergartens schools, museums, libraries, civic centres, health centres and so on. Papers and outputs will include a project website, pan-European, rigorous academic reviews of existing research evidence, recommendations for specific future research agendas and summary recommendations for policy and education practice, and guidance for parents and for software developers, all in relevant languages. The Action will build capacity in ESRs, ensuring a strong legacy is established for future research. This Action will contribute to the

transnational coordination and defragmentation of related research across Europe, offering scientific benefits for researchers across a range of disciplines and cultures. Currently, research in this area is distributed across disciplinary areas and this Action will facilitate the development of interdisciplinary knowledge. Representatives of the children's media industry are also involved, to ensure knowledge exchange and improve the quality of resources available for the support of young children's digital literacy knowledge and skills. The Action will have multiple economic and societal benefits, given the significance of digital literacy for the future of young children, who will be increasingly embedded in the world of technological communication in the decades ahead (see Section C4).

B.4 Complementarity with other research programmes

The proposed Action will complement and build on the work of several current or recently completed EU projects, extending the network of each. These include: EU Kids Online II: Enhancing knowledge regarding European children's use, risk and safety online (SIP-KEP-321803); EU Kids Online III: A Thematic Network to Stimulate and Coordinate Investigation into the Use of New Media by Children (SIP-2010-TN-4201001); NET Children Go Mobile; ITEC - Innovative Technologies for an Engaging Classroom (FP7-ICT-257566 – ITEC); SENnet - Special Educational Needs Network (2011-4071/001-001); E-Skills – Awareness Raising Campaign (SI2.ACPROCE061255600); eTwinning 2014-2020 (2012-5568/001-001); SI NET II - inSafe/Inhope II, (since 2004) (SE-2011-SICCO-211101); MEDAnet (518938 – LLP– 1 – 2011 – 1 – BE – KA3 – KA3NW); Experiweb- a new way to scientific literacy in schools (TAMOP-4.2.3-12/1/KONV-2012-0035); ISIT – Implementation Strategies for Innovations in Teachers´ Professional Development (539512-LLP-1-2013-1-DE-COMENIUS-CAM); VOICES - The VOICE of European Teachers (526613-LLP-1-2012-1-NL-COMENIUS-CNW); SoNetTE - Lifelong Learning Project Social Networks for Teacher Education (531150-LP-2012-NL-KA3-KA3MP); KeyCoNeT —European Policy Network on the Implementation of Key Competences in School Education (EAC-13-2011); Transnational Histories of Children's Media in a 'Glocalised' World (PCIG13-GA-2013-631304); COST Action IS0906 Transforming Audiences, Transforming Societies. In addition, The Action will liaise closely with the European Literacy Policy Network (ELINET), launched in 2014, and COST Action ISI401. The proposed COST Action can be distinguished from both of these networks, which primarily focus on the disciplines of Education, Linguistics and Psychology and address literacy across the lifecourse. The proposed Action includes a broader range of disciplines, focuses on digital literacy and is concerned with children aged from birth to eight, thus includes early childhood specialists. This also

distinguishes the proposed Action from the COST Action ISI404, which is not age-specific and which focuses on reading and the development of measurement tools. Nevertheless, the proposed Action will liaise closely with ELINET and COST Actions ISI401 and ISI404 and ensure complementarity, inviting members of all networks to events and planning joint seminars where appropriate.

C. OBJECTIVES AND BENEFITS
C.1 Aim

The main objective of the Action is to create an interdisciplinary network that will advance understanding of young children's digital literacy and multimodal practices in the new media age and which will build a co-ordinated European agenda for future research in this area. It will develop Early Stage Researchers' (ESR) capacity for future work and will strengthen further the already leading position of Europe in this field. The Action will engage with policy makers in order to ensure impact on policy and practice with regard to parental support, early years schooling and informal education in museums, libraries and community spaces, reflecting a multifaceted approach to enhancing the digital literacy skills and future capacities of young children in Europe.

C.2 Objectives

(A) To provide a means of drawing together current European interdisciplinary research on young children's digital literacy and multimodal practices in homes, communities and early years settings, enabling researchers across the COST countries collectively to identify gaps in knowledge, fostering co-ordinated and collaborative research. (B) To identify emergent digital technologies and applications relevant to young children and appraise their strengths and weaknesses in use in order to inform future research, policy and practice. (C) To identify best practice in digital and multimodal literacy learning and teaching in kindergartens and primary schools across Europe through a review of relevant research and consider the implications for policy and practice, in addition to identifying the practical and theoretical implications for teacher and early years' practitioner training. (D) To exchange knowledge on appropriate methodologies and ethical issues when researching young children's digital literacy and multimodal practices and to foster innovation in this area. (E) To provide training for ESRs and strengthen links between them and established experts in the field. (F) To engage actively with a range of stakeholders, including policymakers, early years practitioners, parent groups and the children's media industry in order to explore the implications of research

outcomes for policy, practice, curricula, pedagogy and community-based learning.

C.3 How networking within the Action will yield the objectives?

The proposed Action will bring together a multidisciplinary network of doctoral students, ESRs and experienced researchers across Europe to link current knowledge about the digital literacy and multimodal practices of young children aged from birth to eight years. There are currently 65 participants in 23 COST countries involved in this Action and the Action will seek to extend this network, particularly to countries that have yet to develop research expertise in this area. Network events will take place across North, South, East and West Europe, as well as in larger and smaller countries, to ensure inclusivity. A multidisciplinary International Advisory Board, comprising of academics from a range of countries outside Europe (some of whom have already expressed interest), will interact virtually with the network through video conferencing and other appropriate tools (e.g. Google hangout), thus the advances in the state of the art in Europe will continue to have global impact. Stakeholders will be involved in the network, including policymakers, teacher educators, early years practitioners, parent groups and children's media industry partners through participation in events. Some of these groups have been involved in the preparation of the proposal. The Action will remain flexible in order to ensure that disciplinary perspectives that were not anticipated during the development of the proposal can be incorporated into the work plan.

C.4 Potential impact of the Action

There are numerous potential benefits of the Action across the scientific field and in terms of meeting European economic and societal needs.
Scientific benefits include the development of a strong knowledge base of current research in the area and a common agenda for future research. The Action will lead to interdisciplinary areas of study being developed, which will inform future research in the field. The Action will also develop theoretical frameworks which can be used to understand the fast-changing nature of reading and writing in a digital age, building on sociocultural understandings of early literacy learning, theories of multimodality and work in the field of media literacy. Formulating a European-wide framework and methods for future research in early childhood is much needed and the Action will facilitate this. The Action has clear *societal and economic benefits*, which include creating an evidence-based platform for young European citizens to develop skills, knowledge and understanding that will enable them to become competent readers and writers of digital texts if they are to enter and perform well in

employment markets of the future. In addition, it will inform an understanding of how to ensure children become critically engaged and responsible citizens, ultimately able to enhance their life chances. The Action will extend understanding of the complexity of literacy learning for young children in the digital age and how parents, caregivers, educational practitioners and communities can support them, with guidance on best practices provided on the project website. The Action will inform government policies on issues relating to internet safety, family digital literacy and early childhood education.

The Action will use the knowledge gained about digital and multimodal literacy practices to inform the development of curricula and pedagogy in early years education across COST countries, by identifying current best practice in kindergartens, early years settings and schools and by sustaining an active dialogue with relevant practitioner audiences and forums. The Action will also inform understandings of culture, for example, the role of digital technologies in accessing cultural heritage, and how young children's cultural lives can be fostered through the use of new media. Issues of creativity and inclusion are also significant i.e. how young children from diverse linguistic, social, cultural and ethnic backgrounds are left out or fast-streamed into digital literacy practices. Good practice guidance in fostering young children's creativity in an inclusive manner through innovative uses of digital media will be developed.

The Action's influence on policy development at European and national levels will be secured through the direct engagement of policy makers in the Action and the established contacts of Action participants who currently contribute to a range of European programmes and networks that engage regularly with policy makers. Reports and briefings will be produced for policy makers, in relevant languages. Further organisations consulted during the development of this bid and for whom the outcomes of the Action will have relevance include media literacy projects, media regulators, industry providers and developers, museums, libraries, parenting groups and child welfare organisations. Regular reports will be developed for these audiences in appropriate languages and representatives will be invited to relevant Action events.

C.5 Target groups/end users

The end users of this Action will be: (a) Researchers at all stages of their career development and doctoral students working in the area of young children's digital literacy practices, who will benefit from the process and outcomes; (b) Researchers working across a wide range of disciplines on related matters (see section H.1), who will benefit from the synthesis of research evidence and recommendations for future action; (c) Policy makers who are responsible for developing educational

provision for this age group will find the identification of best practice and policy recommendations to be of value; (d)Teacher educators will value the collation of research in this area, which they will be able to use to inform their training programmes; (e) Early years practitioners, who will be interested in identifying best practice in supporting the development of young children's digital literacy practices; (f) Parents and carers will find it useful to have access to summaries of summary research reports that identify how best to support children's digital literacy development across media at home; (g) Children's media industry companies and television broadcasters will find the collation of research on children's digital literacy development and recommendations for design to be of value in the creation of high quality products that support literacy development for this age group. Groups (a), (b), (d), (e) and (g) have been involved in the preparation of the proposal.

D. SCIENTIFIC PROGRAMME
D.1 Scientific focus

The Action will focus on five specific areas, which are identified as themes, and each will have a Working Group (WG). The WGs will all undertake a similar set of tasks: (i) Collection and synthesis of research: This will involve identifying current European research on the themes and placing this research within an international context. Critical reviews of research in these themes will be produced and published in leading academic journals. Bibliographies will be collated and placed on the project website. (ii) Identification of future research agendas: This will involve the development and agreement of research agendas that are required in order to take forward European research in each of the thematic areas. This work will lead to the development of bids for future EU funding through different instruments. (iii) Identification of current national culture, policy and practice in relation to digital literacy in early childhood: This will involve a review of how each theme is shaped by diverse European cultures. Analysis of key European and national government documents and publications will be undertaken. National policies and practice in relation to each of the themes will be mapped. In some cases, analyses of national media will be undertaken in relation to each theme. (iv) Recommendations for policy makers: Each WG will provide evidence-informed proposals for future policy development. Each WG will involve stakeholders including policy makers and educators and will ensure that capacity building is undertaken in relation to ESRs. It may be the case that WGs wish to undertake comparative research on a subject in order to inform their work. Whilst this is possible, it would not be funded by the COST Action, but by the universities of the individuals involved. The themes are as follows:

Theme 1: Young children's digital literacy and multimodal practices in homes and communities: In this theme, existing knowledge on the nature and extent of young children's digital literacy practices will be identified and synthesised. How far these practices differ according to socio-economic group, family profile, gender, ethnicity, language, physical and cognitive ability, geography and age will be examined. The theme will develop a theoretical framework to understand the nature of children's multimodal practices in homes and also community spaces, where engagement with digital technologies is becoming increasingly important in aspects of culture e.g. accessing cultural heritage. The role of parents and caregivers will be examined. This theme will further understanding of how children's personal, social and cultural lives can be fostered through the use of new technologies. In addition, the theme will consider how different European cultures view the role of digital media in young lives and how digital resources are utilised to meet the perceived needs of the young. Issues of creativity and inclusion are also significant. Theme 1 will examine areas such as the role of the creative industry in the provision of opportunities for young children, and matters relating to digital inclusion across socio-economic, ethnic and linguistic groups. This theme will monitor closely emergent technological developments (beta-tests, experimental apps, media lab activity and so on) that might be relevant to children's digital literacies in the near future. It will also review first reports on emerging digital literacy practices by 'early adopters' of the most recently introduced technologies across a variety of contexts.

Theme 2: Young children's digital literacy and multimodal practices in early years settings and schools and informal learning spaces: The tasks to be coordinated in this theme include identifying best practice for early years settings, schools, continuing professional development and initial teacher education, in addition to considering digital literacy practices in informal learning spaces such as public libraries, museums and civic spaces. Research agendas to inform the development of future curricula and pedagogy will be outlined. Policy and practice in early years curricula across COST countries will be identified, compared, contrasted and critically reviewed, with the aim of informing policy and reducing the current inequities in knowledge and practice across Europe.

Theme 3: Reading and writing on screen: This theme will examine knowledge on the affordances of a range of mobile and fixed screen devices for young children's reading and writing. It will include a focus on how mobile and convergent media could help children with needs such as visual and hearing impairments. It will explore the skills and knowledge required for reading and authoring multimedia and multimodal texts, including interactive texts, and will identify knowledge of the effects and potential of multimedia and digital resources for early literacy in mainstream and special education, identifying a research agenda for future development and ensuring impact on policy and practice.

Theme 4: Young children's online digital literacy practices and their relationship to offline digital

literacy practices: This theme will involve the identification and fostering of research on young children's access to and use of the Internet, the range of online sites they use and the concomitant risks and opportunities. The theme will consider the relationship between children's online and offline digital literacy practices, given recent technological developments in this area. Theories for understanding the synergy between these domains will be developed. The theme will address urgent policy needs in this area.

Theme 5: Methodologies and ethics for research on digital literacy: This theme will identify methodologies that can be employed on projects in this area, including cutting-edge, innovative methodologies, and will develop a database for use by researchers, offering resources to support further the development of mixed methods, ethnographic and participatory methodologies.

D.2 Scientific work plan methods and means

Each of the themes identified above will have a corresponding Working Group (WG). Each WG will meet twice a year. Work between meetings will take place through appropriate online tools e.g. Google Drive, Skype. Each of the WGs 1-4 will organise one Think Tank event, to which a large range of stakeholders will be invited. The project website will be organised according to the needs of each of the user audiences and there will be specific sections that each group can access, with appropriately constructed information for each group. Each of the WGs will follow the same structure. Six of the eight meetings will be focused on the substantive questions that shape that area in order to address the objectives. The seventh meeting will focus on establishing an agenda for future research in that area and will be the stimulus for the development of collaborative research bids. The final meeting will identify the implications for policy development in the area and will finalise all plans for dissemination. The objectives and outputs of each WG are identified below.

WG1: Young children's digital literacy and multimodal practices in homes and communities. Objectives: (i) To identify the current state of academic knowledge in the area across Europe and contextualize this within the international arena. (ii) To identify the way in which media in each participating country addresses discourses related to young children's engagement with digital media and technologies and to monitor the effects of emergent technologies. (iii) To identify the implications of research findings across COST countries for the children's media industry. (iv) To identify key research questions in the field for future study. (v) To identify key messages for policy makers.

Theme foci: The WG will identify the current state of knowledge on young children's digital literacy and multimodal practices in homes and communities, including synthesising research on parental support of children's digital literacy development. It will consider issues such as the digital divide

and the impact of socio-economic status, ethnicity, identity status (e.g. refugee/ immigrant/ indigenous), gender, language and physical ability on digital literacy development. It will examine emergent technologies and their impact for the early years of childhood. It will explore the status of digital literacy in early childhood in European cultures. Finally, the WG will identify the future research agenda in this area and examine the implications of all of the areas investigated for policy in relation to education, parenting and the media industry.

Outputs: Working Group reports; Reviews of published academic literature; Report for media industry; Reports for parents and caregivers in the form of accessible leaflets/ posters in relevant languages. Reports for policy-makers.

WG2: Young children's digital literacy and multimodal practices in early years settings and schools and in informal learning spaces. Objectives: (i) To identify the current state of knowledge in the area across Europe and contextualise this within the international arena. (ii) To identify the educational policies of each participating country with regard to digital literacies in early childhood in both formal and informal learning spaces. (iii) To identify the implication of the research findings for European development of childcare and early education in terms of curriculum, pedagogy and teacher education. (iv) To identify best practice from the research literature. (v) To identify key research questions in the field for future study. (vi) To identify key messages for policy makers.

Theme foci: The WG will identify the current state of knowledge on young children's digital literacy and multimodal practices in early years settings and schools and informal learning spaces such as museums and libraries, including a focus on mobile technologies. It will examine current policies in participating countries in relation to digital literacy in early years settings and schools and informal learning spaces and identify research on early years practitioners' beliefs and practices in relation to digital literacy. The WG will consider issues relating to the assessment of digital literacy and multimodal skills and knowledge. It will synthesise research and good practice on teacher education for a digital future. Finally, it will identify the future research agenda in this area and examine the implications of all of the areas investigated for policy in relation to education in informal and formal settings.

Outputs: Working Group reports; Reviews of published academic literature; Best practice guidance for teachers, teacher educators, other practitioners (such as museum educators) and policy makers.

WG3: Reading and writing on screen. Objectives: (i) To identify the current state of knowledge in the area across Europe and contextualise this within the international arena. (ii) To develop a theoretical framework for understanding young children's engagement with multimodal texts. (iii) To identify key research questions in the field for future study. (iv) To identify key messages for policy makers.

Theme foci: The WG will identify the current state of knowledge on young children's reading and writing on screen. It will synthesise research on the quality and uses of e-books and on writing and multimodal design using tablets. The WG will consider the affordances of apps designed for this age group and identify best design principles. It will develop new theories of early reading and early writing in the digital age. Finally, the WG will identify the future research agenda in this area and examine the implications of all of the areas investigated for policy in relation to education, parenting and the media industry.

Outputs: Working Group reports; Reviews of published academic literature; Best practice guidance for parents, teachers, teacher educators, policy makers and designers of apps, interactive books and website for young children.

WG4: Young children's online digital literacy practices and their relationship to offline literacy practices. Objectives: (i) To identify the current state of knowledge in the area across Europe and contextualise this within the international arena. (ii) To develop a theoretical framework for understanding the relationship between children's online and offline digital literacy practices. (iii) To identify key research questions in the field for future study. (iv) To identify key messages for policy makers.

Theme foci: The WG will identify the current state of knowledge on young children's online digital literacy practices and the relationship between their online and offline literacy practices. It will identify research on issues relating to internet safety. It will develop new theories for literacies in virtual spaces and for explaining the relationship between online/ offline literacy domains. It will synthesise research on children's digital literacy in virtual worlds and their augmented reality play. Finally, the WG will identify the future research agenda in this area and examine the implications of all of the areas investigated for policy in relation to education, parenting and the media industry.

Outputs: WG reports; Reviews of published academic literature; Edited book; Best practice guidance for policy makers and practitioners.

WG5: Methodologies and ethics for research on digital literacy. Objectives: (i) To identify the range of methodologies previously or currently employed on relevant projects across Europe. (ii) To identify innovative methodologies that could inform future research in this field, including participatory methods with young children as agentive and valued researchers. (iii) To examine the ethical issues that arise in research on digital literacy in the early years and develop guidance for researchers. (iv) To identify key messages for policy makers.

Theme foci: The WG will identify the current state of knowledge and practice on quantitative/qualitative/ mixed methodologies in research on young children's digital literacies. It will draw together current practice on co-production methodologies and multimodal ethnography and

on young children's active participation in research on their digital literacy practices. It will synthesise research and practice in ethical issues in research on young children's digital literacy in homes, communities, early years settings and schools. The WG will consider emerging methodologies in terms of the appropriateness for use in this area. It will identify issues regarding the ethics of researching online literacy practices and offer guidance on best practice. Finally, the WG will identify the future research agenda in this area and examine the implications of all of the areas investigated for researchers and policy makers.

Outputs: WG reports; Published academic literature reviews; Database of methodologies; Guidance on ethics.

The outputs from each of the WGs will be hosted on a project website. The website will be used to disseminate information to diverse end users. Outputs will also include journal papers and special issues related to each theme. Target academic journals will include: *European Educational Research Journal*; *European Journal of Communication*; *Journal of Children and Media*; *Journal of Early Childhood Literacy*; *New Media and Society*; *Pre-School and Primary Education*. At least two edited books will be produced through the Action (although the likelihood is that there will be more, the themes of which cannot be identified at this point). One book will draw together the literature reviews produced across the themes. The second book will focus on Theme 4, as there is very little published work in this area currently. The books will include chapters written by established scholars and Early Stage Researchers, and mentoring for the latter will be built into each the organisation of each theme. Liaison with policy makers will take place throughout the Action. At the end of each of the MC/ SG round of meetings, the Action will host a seminar for policy makers who are not involved in the MC. This will take place once a year in Brussels and once a year in the country that hosts the second MC/ SG meeting of the year (with translators). The purpose of the seminars will be to share progress so far and outline implications for policy. Policy makers will also be able to shape the agenda for the future meetings of the WGs with input regarding their own areas of concern and priority. At the end of the Action, a Conference will be organised which will serve to disseminate the outcomes of the project as a whole to a wide range of stakeholders, including policy makers.

Monitoring and evaluation of the Action will take place as follows. In addition to the regular reports to the COST commission, reports will be developed for each of the MC and SG meetings. Monitoring and evaluation reports will be a standard item on each meeting agenda. If WGs are not working to schedule, the MC will put in place strategies to support the WGs, such as the inclusion of additional senior scholars in that WG. The evaluation of the Action will take into account a range of factors, including: (a) extent to which the objectives of the Action and each WG is met, according to the established timeline, identified through reports and outputs; (b) extent to which targets for gender

balance and ESR engagement are met; (c) extent to which Training Schools and Short-Term Scientific Missions (STSMs) meet their objectives, identified through participant evaluations, reports and outputs (d) scientific quality of outputs measured through impact factors or citation rates for publications; (e) media coverage, attendance, etc. for events and activities; (f) data/reports from services that analyse social media activity, website impact, etc. (visits, tweets, re-tweets, on-line presence and reputation, etc.); (g) impact of engagement in the Action on ESR career development; (h) number of practitioners, policy makers and media industry partners attending the events; (i) impact on policy through publication of reports, white and green papers, presentations to government committees.

E. ORGANISATION

E.1 Coordination and organisation

A **Management Committee (MC)** will oversee the Action. The MC will meet twice a year. The MC's role will be to oversee progress on all Action objectives and to make recommendations for future action. The MC will also oversee the development of research bids and policy recommendations emerging from the Action. The MC will involve up to two delegates from each COST country participating in the Action. The MC will include the following roles: MC Chair, Vice Chair, 5 WG Leaders, STSM Manager, Training Schools Manager, ESR Manager, Stakeholders Manager, International Advisory Board Manager, Scientific Secretary, Editorial Manager, Website and Dissemination Manager, a range of stakeholders, including policy makers. ESRs will be invited to take on some of these roles. The International Advisory Board will be invited to contribute at appropriate points in MC meetings through the use of Skype or similar facility.

A **Steering Group (SG),** consisting of the Chair, Vice-Chair and WG leaders, STSM Manager, Training Schools Manager, ESR Manager, Stakeholders Manager, International Advisory Board Manager, Scientific Secretary, Editorial Manager, Website and Dissemination Manager. It will meet twice a year. Its role will be to ensure that all Action objectives are met. It will set the agenda for the MC meetings and implement MC policy decisions. It will oversee the project evaluation, website and dissemination plans. In order to minimise costs as far as possible, MCs, SGs and WGs will take place in the same venues and around the same time (over a period of 2 days) in order to minimise costs. One set of meetings per year will be rotated around East, West, North and South Europe and one set of meetings per year will take place in Brussels, using COST premises if possible in order to reduce costs. Training for ESRs is central to the activity of this Action. An ESR Manager will be appointed

to the SG. He or she will provide support and training for those ESRs who will be Chairs or Deputy Chairs of the WGs and will oversee relevant training at the Training Schools (TS).

Two **Training Schools (TS)** will be organised in Years 2 and 3 of the project. The first TS will focus on issues related to Themes 1-4 and the second to issues related to Theme 5. Experts in the research embedded in these themes will provide lectures and roundtable discussions. Training school participants (PhD students and other ESRs) will have opportunities to attend workshops and seminars and will analyse related datasets, engage in discussions and debates and present a poster of their own research in the area. Informal activities will be embedded into the TS, such as 'Picnics with the Professors', to ensure maximum interaction. Field trips to relevant sites will be arranged e.g. kindergartens, schools, museums. Evaluation methods will involve participatory appraisal techniques.

At least four **Short Term Scientific Missions (STSMs)** will take place during each year of the Action. These will enable researchers/ ESRs to stay for short periods of time, from one week to three months, at host institutions in fellow COST countries in order to further their knowledge, work on Action publications and develop research proposals. The STSMs will relate to each of the themes. Links between researchers focused on specific areas will emerge from the themes. These links will be supported through encouragement for submission of symposia at relevant conferences and submission of proposals for special issues

One **Think-Tank (TT)** will take place for each of the themes 1-4. The TTs will include stakeholders and their purpose will be to identify the implications of the activities of the theme Working Groups for policy and practice and to advise on additional relevant outputs. Evaluation methods will involve participatory appraisal techniques.

Measures will be put in place to prioritise participation in all elements of the COST action by under-represented groups e.g. according to gender, ethnicity, ESRs, location. A gender balance of 50% and ESR balance of 40% will be sought for participation in the Action through the identification of potential participants and their invitation to join the COST. Identification of potential participants in order to address gender and ESR target quotas will take place through surveys of recent publications in the field, conference attendees, messages placed in relevant online networks and invitations placed in appropriate journals and newsletters (see Section E.4).

Milestones for each year are as follows:

Year 1: Project website set up; 2 newsletters; Database for Theme 5 set up; 2 MC and SG meetings; 2 seminars for policy makers; 1 Think-tank; 10 WG meetings; at least 4 STSMs; All outputs from these activities placed on website for user groups.

Year 2: 2 MC and SG meetings; 2 seminars for policy makers; 2 newsletters; 10 WG meetings; at

least 4 STSMs; 1 Think Tank; 1 Training School; All outputs from these activities placed on website for user groups.

Year 3: 2 MC and SG meetings; 2 seminars for policy makers; 2 newsletters; 10 WG meetings; at least 4 STSMs; 1 Think Tank; 1 Training School. All outputs from these activities placed on website for user groups.

Year 4: 2 MC and SG meetings; 2 seminars for policy makers; 2 newsletters; 10 WG meetings; at least 4 STSMs; 1 Think Tank; 1 Final Conference; 1 final report. All outputs from these activities placed on website for user groups.

E.2 Working Groups

Each WG will have a Chair and a Deputy Chair. One of these roles will be undertaken by a senior academic and one by an ESR, for each WG. The Chair and Deputy Chair will be responsible for organising all WG meetings, developing the agendas, overseeing the preparation of all outputs and reporting on progress to the MC. Each working group will include a Dissemination Manager, whose role it will be to liaise with the MC Website and Dissemination Manager to ensure strong communication. Other roles within the WG will be decided by each WG. WGs will include stakeholders, including policy makers.

E.3 Liaison and interaction with other research programmes

Participants in all of the programmes and networks identified in Section B4 will be invited to relevant Action events. It will be important to maintain contact with organisations / networks such as ELINET, European Schoolnet, Confederation of Family Organisations in the European Union (COFACE), EU Kids Online, Digital Kids Go Mobile. As an example, European Schoolnet Academy for Massive Open Online Courses (MOOCs) has several thousand teachers taking courses with them and so this will relate to outcomes for WG2. Liaison and invitations with programmes and organisations not involved in the proposed Action will take place through newsletters and direct contact at conferences and seminars. Specific meetings will be undertaken with relevant programmes, organisations and individuals where required.

E.4 Gender balance and involvement of early-stage researchers

The Action will ensure a 50% gender balance and 40% ESR inclusion targets are achieved by

contacting specific individuals to join the MC from countries not yet involved and ensuring balance when setting up the MC, SG and WGs. Selections will be made to participate in TS and STSMs and gender balance and inclusion of ESRs will be take into account when finalising selected participants. The Action will adopt strategies to ensure we meet targets with regard to gender and ESR balance. The strategies and their progress will be reviewed at each MC and SG meeting. The strategies are outlined below.

In terms of achieving a gender balance, the following strategy will be adopted. It is the case that there is a difference in gender balance across some disciplines involved in the Action and so this knowledge will be taken into account when identifying potential participants who may be contacted and invited to participate. The Action will liaise with relevant bodies (e.g. FELA/ ELINET) to identify potential participants in order to achieve gender balance.

In relation to the recruitment of ESRs, it is also the case that there is a difference across disciplines in terms of age profile and again, this will be taken into account. Some Research Councils in Europe are already taking measures to address demographic profiles in certain disciplines and therefore the Action will target those ESRs who have been registered on PhDs or appointed to academic posts in recent years in line with these strategies. The Action defines ESR as including PhD students, but it is recognised that there is a need to differentiate some of the recruitment strategies for PhD students and ESRs in academic posts (see below).

ESRs have been involved in the development of this proposal and will be active in the MC and SG of the Action as well as in the WGs and other activities. Capacity building will take place through the construction of the WGs, which will involve established researchers, ESRs, researchers in countries with strong bodies of research in the field and countries with little previous research in the field. ESRs will be supported in the writing of publications relevant to the Action and the preparation of research bids through mentoring, STSMs, and specific sessions at the Training Schools.

The strategy for achieving the ESR balance will also include the following activities: Advertising the COST Action through all available disciplinary networks; Identifying ESRs at conferences (e.g. many conferences have a pre-conference strand for ESRs that the Action can target) and seminars and discussing the benefits of participating in the COST Action with them; Advertising COST opportunities in relevant journals and newsletters; Circulating details of the COST Action to doctoral training centres and graduate schools in order to encourage participation from PhD students; Including FAQ sections of the website in which the Action can address any specific concerns and questions ESRs and PhD students may have. The website will provide information about the Action that can be used by academic mentors to ESRs in their first years of an academic post. ESRs who have participated in Year 1 of the Action will be asked to promote the benefits of their participation

in short videos which will be placed on the website and the Action's YouTube channel. The Action's social media strategy will also aim to target those ESRs who may not know of the Action through other means.

F. TIMETABLE

The action will take place over 4 years	Y1	Y1	Y1	Y1	Y2	Y2	Y2	Y2	Y3	Y3	Y3	Y3	Y4	Y4	Y4	Y4
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
MG meetings	x		x		x		x		x		x		x		x	
SG meetings	x		x		x		x		x		x		x		x	
WG meetings	x		x		x		x		x		x		x		x	
Policy Seminars	x		x		x		x		x		x		x		x	
Think Tanks		x				x				x		x				
STSMs		x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Training Schools							x				x					
Reports			x				x				x					x
Assessment		x				x				x						x
Newsletter		x		x		x		x		x		x		x		x
Website (and content)		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Database (Theme 5)		x			x		x		x		x		x		x	
Literature Reviews							x	x			x	x				
Edited books												x	x			
Final Conference																x

MC: Management Committee; SG Steering Group; WG: Working Groups

G. ECONOMIC DIMENSION

The following COST countries have actively participated in the preparation of the Action or otherwise indicated their interest: AT, BE, CY, CZ, DE, DK, EE, EL, ES, FI, HU, IE, IT, LU, MT, NL, NO, PL, PT, RO, SE, SK, UK. On the basis of national estimates, the economic dimension of the activities to be carried out under the Action has been estimated at 92 Million € for the total duration of the Action. This estimate is valid under the assumption that all the countries mentioned above but no

other countries will participate in the Action. Any departure from this will change the total cost accordingly.

H. DISSEMINATION PLAN
H.1 Who?

The target audiences for the results of the Action include: (A) Action Participants; (B) Researchers in the EU who did not participate in the Action in the fields of: Applied Linguistics; Early Childhood Education; Childhood Studies; Children's Literature; Computer Science; Cultural Studies; Information Studies; Literacy and Language; Media Studies; Psychology; Sociological Studies; (C) Researchers outside the EU in the fields identified in (B); (D) Research networks e.g. European Research Association; (E) Policy makers at European and national levels who are concerned with education, parenting and creativity and culture; (F) Professional bodies e.g. Federation of European Literacy Associations; (G) Teacher educators; (H) Early years practitioners in early years settings and schools; (I) Parents and parenting organisation: (J) Children's media industry; (K) Media, information and technology providers; (L) General public.

H.2 What?

1. Action Website: The design of the website will be such that specific audiences will be directed to specific areas of the website. This will contain: members' page containing minutes from all MC and SG meetings, reports from WGs, Think-Tanks and, STSMs and Training Schools. The site will also offer open access to dissemination reports, literature reviews, methodological database, summaries of findings aimed at specific users e.g. policy makers, early years practitioners, children's media industry and parents. The website will also include a section for ESRs with appropriate resources e.g. information about relevant research calls.

2. Newsletter: An electronic newsletter will be produced every six months that will provide updates on actions and outputs for a general audience. It will be placed on the website and circulated via email to all subscribers.

3. Social networking sites: The Action will have a social media strategy, which will be particularly helpful when reaching audiences that may not otherwise participate. The Action will make use of a YouTube channel, Facebook and Twitter to disseminate news. The Action will also target forums used by potential user groups (see section H.3). The website and social networking sites will be

managed by a Web Manager and overseen by the Website and Dissemination Manager.

4. Events: (a) Action participants will engage in WGs, seminars and the final Conference; (b) PhD students and Early Career Researchers who are not Action Participants will participate in Training Schools, STSMs and the final Conference; (c) Policy makers and children's media industry partners will be invited to WGs and seminars as appropriate, the seminars that take place at the end of each MC/ WG meeting, and the four Think-Tank events; (d) The final Conference will be open to all users identified in section H.1.

5. Publications: (a) Each of the Working Groups for themes 1-4 will publish at least one literature review in a leading international academic journal, synthesising literature in the areas of focus. (b) At least two major edited books will be published, one related to Theme 4 and one which provides an overview of the Action. Publishers that specialise in books related to the Action will be contacted e.g. Routledge, Palgrave, Open University Press. (c) Reports and briefings will be published that summarise findings for specific audiences e.g. policy makers, early years practitioners, parents, children's media industry, all in relevant languages. (d) The Working Groups are expected to produce other outputs e.g. co-authored peer-reviewed articles, special issues, conference papers, dependent upon the content of the workshops. (e) The Action will be able to reach several thousand teachers in 30 COST countries through the European Schoolnet's work. This will be part of WG2's outputs.

6. Database: A database will be produced which will contain details of methodologies and methods used in research projects in the field, and other methodologies and methods that could be adopted in this area.

H.3 How?

Academic audiences: Action participants, researchers in Europe who do not participate in the Action, researchers outside Europe and research networks will be targeted through the relevant sections of the website, use of relevant list-servs, notices at conferences, journal special issues and relevant publications. The International Advisory Board will be used to promote the Action.

Policy makers: Policy makers will be sent briefings and newsletters that will then be placed on the Action website. The Action participants already have well-established contacts with a range of European and national policy makers and these contacts will be utilised in the setting up and invitations to events.

Professional audiences: Professional bodies, teacher educators and early years practitioners will be contacted through relevant networks in each country. These differ across Europe but include subject associations, teaching councils and trade unions. Outcomes from WG2 will be linked to the European

Schoolnet Academy for MOOCs. Periodical publications for teachers will be approached and invited to include articles about the Action.

Children's media industry: The Action will include invited professionals from the children's media industry. Other professionals will be informed of the outputs through newsletters, dedicated website area, conferences and professional networks. Parents: Parents will be informed of the Action through relevant groups e.g. national parenting groups and online groups such as 'Mumsnet' and 'Netmums' (these are online forums in which users can post questions and responses on matters relating to parenting). Facebook and Twitter will also be useful for this user group, and information for parents will be provided on the Action website in relevant languages.

Media: Regular press releases will be used to inform media of the progress of the Action. Facebook and Twitter will also be useful for this user group. The general public will be informed through the media.

These activities will take place throughout the Action. The Management Committee will have a standing item on dissemination activities to each of these groups, led by the Website and Dissemination Manager. On completion of the Action, the website will remain in place and will be maintained by the institution of the Action Co-ordinator.