

RPM-Android: New Results with a Tablet Application to Foster Resilience with Vulnerable Families

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Abstract

The paper presents an explorative research about the use of the novel tablet application RPM-Android within P.I.P.P.I. (Program of Intervention for Prevention of Institutionalization). The app – together with RPMonline, to which it is linked – is based on the Italian adaptation of the British Common Assessment Framework and aims at providing integrated support for all the parties involved in the intervention process, in order to foster children-parent participation as a key aspect for a family's resilient trajectory. The presentation aims at showing the new features, the results of the first pilot research and the design of the second one.

Keywords: vulnerable families, family participation, resilience based tool, tablet app

Résumé

L'article présente une recherche exploratoire sur l'utilisation de la nouvelle application de la tablette RPM-Android au sein de P.I.P.P.I. (Programme d'intervention pour la prévention de l'institutionnalisation). L'application – associée à RPMonline – est basée sur l'adaptation italienne du Cadre commun d'évaluation britannique et vise à fournir un soutien intégré à toutes les parties impliquées dans le processus d'intervention, afin de favoriser la participation des enfants et des parents, un aspect clé de la trajectoire résiliente de la famille. La présentation vise à montrer les nouvelles fonctionnalités, les résultats du premier pilote et la conception du second.

Mots-clés : Familles vulnérables, participation de la famille, outils de résilience, application de tablette

1. Child & Family Social Work and ICT: Bioecological and Resilience perspectives

In social work, the possibilities and opportunities offered by the use of Information and Communication Technology (ICT) entail risks and difficulties (Schwartz *et al.*, 2014) but they may be of great support when used within a positive, human and resilient base (Haenens, Vandoninck, & Donoso, 2013). More and more professionals ask for new tools and also for ITC tools to improve the theory-practice connection and to bridge services and families-children. On the one hand, ICT potential and positive impact on social work with families has been recognized in terms of opportunities and possibilities (Tregeagle & Darcy, 2008; Vaquero, Urrea, & Mundet, 2014), however, on the other hand, there is not much evidence about the impact ICT tools have in improving the wellbeing of vulnerable children and families, and the professional work with them (Niela-Vilén, Axelin, Salanterä, & Melender, 2014).

According to Parton (2008), the challenges for the ICT introduction and practice in social work does not have much to do with issues arising from the nature and characteristics of ICT, but rather with the professional culture and the organization of child care-protection system. For instance, professionals may know only partially the possibility of ICT, with their pro and cons, or have misconceptions about them due to a just personal based knowledge and/or a lack of a theoretical and professional framework.

Looking at ICT from an ecological point of view (Bronfenbrenner, 1979, 2005), which is mainstream in social work, and integrating it with the perspective of resilience, we wonder how ICT may foster resilient processes when people face adversity and how professional may intentionally use them in their workflow. According to Ungar's definition (2008, p. 225) "in the context of exposure to significant adversity, resilience is both the capacity of individuals to navigate their way to the psychological, social, cultural, and physical resources that sustain their well-being, and their capacity individually and collectively to negotiate for these resources to be provided in culturally meaningful ways."

As a consequence, it becomes clear that ICT tools:

- may be considered as tools of relationship between either the different actors of the same system and the actors of various systems;
- may foster the circularity and interdependence between systems for the relationship within them and also because in each context of the ecology human beings navigate their resources and negotiate meanings according to their personal culture and the culture/s of the different systems;
- need a culture (from micro to macrosystem) to guide their use in a shared and agreed way from the point of view of different actors (families, professionals, institutions, policies);

- ask for constantly upgrading the awareness on their use (they may shape new ways of relating with other people and of processing information);
- may foster and ease all the processes regarding data collection and management within and between the different systems;
- may empower and ease the data use for evaluative and formative aims along all the systems: in the process of working with families in their care-plan, in teams of professionals working in a service (local level), in teams involved in the same program (national level), in policy decision making (political level);
- requires further study and practical research to transfer the results and knowledge (the culture) to professional/family/policy makers' training.

2. The P.I.P.P.I. program and its tools

P.I.P.P.I. (Program of Intervention for Prevention of Institutionalization) is a training-intervention-mix methods research program funded by the Italian Ministry of Welfare. According to the EU Recommendation on supporting positive parenting and investing in children (REC 12, 2006) and to the EU 2020 goals on decreasing child out-of-home placement and fighting poverty and social exclusion, P.I.P.P.I. aims at responding to problems connected with vulnerable parenting and child neglect, intended as a significant difficulty to meet the child's needs recognized as fundamental by the scientific knowledge (Lacharité, Ethier, & Nolin, 2006). P.I.P.P.I. focuses on supporting parenting through ecological and resilience-based multi-professional intensive intervention in order to prevent child placement and/or foster family reunification by:

- articulating interventions between the different areas of activity involved around the needs of children;
- empowering parental response to child's needs;
- promoting the participation of parents and children in the care process (building analysis-assessment-plans together) assuming that "the best predictor of success is the engagement of families" (Berry, 2007).

Since 2014, the national scaling up of the program has been in progress in 124 Italian cities involving 1500 families, their children aged 0-11 years, and the practitioners working with them.

2.1 RPMonline and RPM-Android

According to the method of "participatory and transformative evaluation" (Serbati, Ius, & Milani, 2016), the involvement of family member should be fully fostered along all the steps of the care path (assessment, planning, intervention, evaluation). Thus, the resilience process of

navigation/negotiation above-mentioned may be considered as another way to represent the care path with the participatory and transformation evaluation.

P.I.P.P.I. professionals use several tools within the method of “participatory and transformative evaluation” (Milani *et al.*, 2014). The main one is RPMonline, a web interface developed by LabRIEF and C.S.I.A. (Information Technology Center, University of Padua) that supports all the different steps of the work with families and the program evaluation, by linking together the “social” and “informational” requests of professionals’ work (Parton, 2008). RPMonline is based on the Italian adaptation of the British Common Assessment Framework (Parker, Ward, Jackson, Aldgate, & Wedge, 1991, Department of Health, 2000) that is called the Multidimensional Model of the Child’s World and fosters all the process of the care plan and aims at empowering the participation of all the people involved in the intervention (children and parents, practitioners, teachers, etc.) giving them voice, collecting their point of view and leveraging their resources (Daly, 2014; Milani, Serbati et al., 2015).

The professionals belonging to the Multidisciplinary Team working with each child and family, after the agreement with family, cooperate and document their work in a child-dedicated RPMonline space, where they:

- register qualitative and quantitative assessment-planning-evaluation;
- fill in questionnaires and see their results in charts;
- log the meetings with colleagues and/or family members;
- get PDF reports to be used with the family, other professionals, etc.

The Access to RPMonline is protected and restricted via passwords. Data are stored in a central database and can be retrieved in different levels by a local/city administrator or by the national administrator (for research and evaluation purposes).

Since 2014, a novel application for Android tablets called RPM-Android is being developed by LabRIEF and D.E.I. (Department of Information Engineering, University of Padua) in order to ease and empower the RPMonline actions that involve the work in the field with families (Fantozzi, Ius, Serbati, Zanon, & Milani, 2014, presented at the 2nd World Congress on Resilience). More precisely, RPM-Android:

- provides an easier access to all the key features of RPMonline (assessment, micro-planning, evaluation, log of meetings with families, data protection with passwords) by leveraging on the hardware/software possibilities offered by mobile devices (Figure 1, 3);

- aims at offering integrated support for social practitioners as well as non-professionals, i.e., parents and children (4-11 years old) in order to allow children to be actively involved by making them directly interact with the tablet and to offer the possibility of sharing with parents information about the intervention process;
- is an engaging, intuitive human-machine interface leveraging on hardware facilities in mobile devices (touch screen, camera, accelerometer etc.). For instance, in the “Triangle” (Figure 1) a picture of the child, acquired with the device camera, shows who is at the center of the intervention process;
- adapts its interface to the role and level of experience of the user (professional, parent, child);
- can operate in the field, even without a network connection, since it is able to defer synchronization with the RPMonline database as required;
- provides a powerful radar chart (Figure 2) summarizing the results of the quantitative assessment in a way that is easy to share with parents: datasets can be dynamically added and removed to highlight improvements and challenges;
- provides eco-maps (Figure 4) allowing children to interactively draw the connections in her/his life and specify the quality of the relation with each individual, place or animal through colored lines and text description. Connections can be repositioned on the map by dragging them, and the whole interface is fully touch-based;
- is equipped with several experimental user interfaces based on tablet movement analysis, whistle recognition, smile detection, to obtain assessment scores by having children directly interact with the tablet.

Partie 4 : Familles en difficultés et résilience

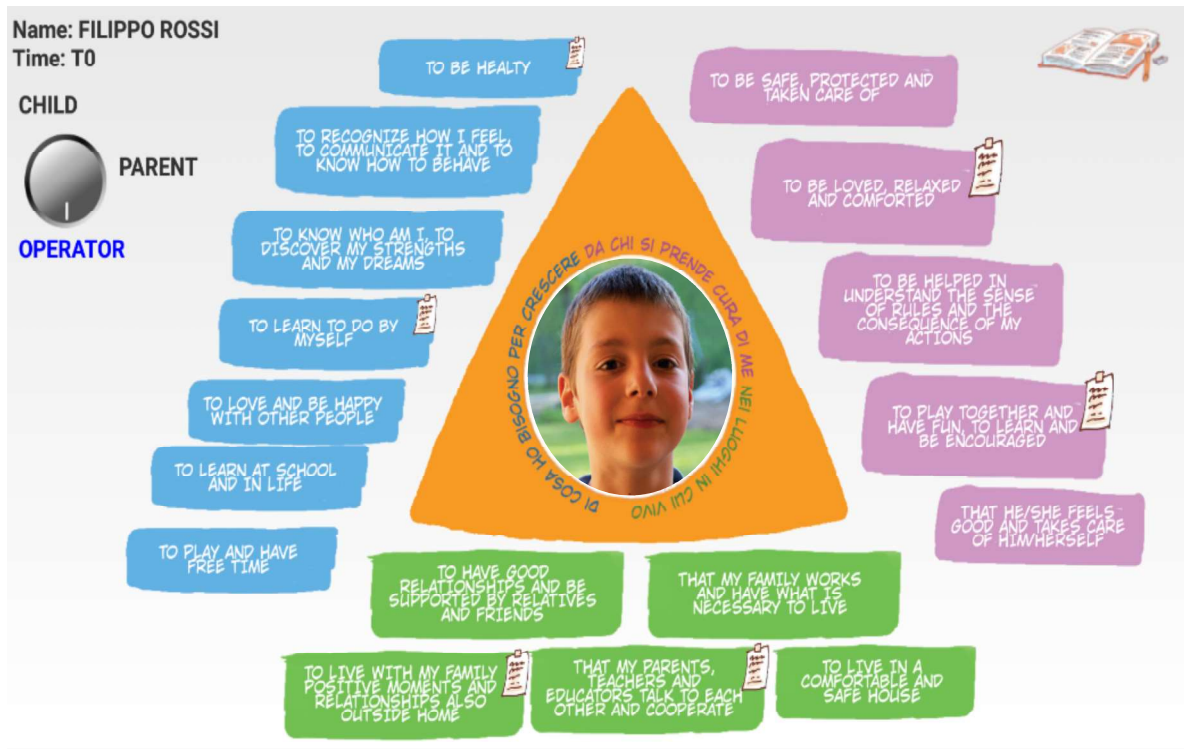


Figure 1. The Child's World (also referred to as "the Triangle") with the Log of Meetings' Diary

Partie 4 : Familles en difficultés et résilience

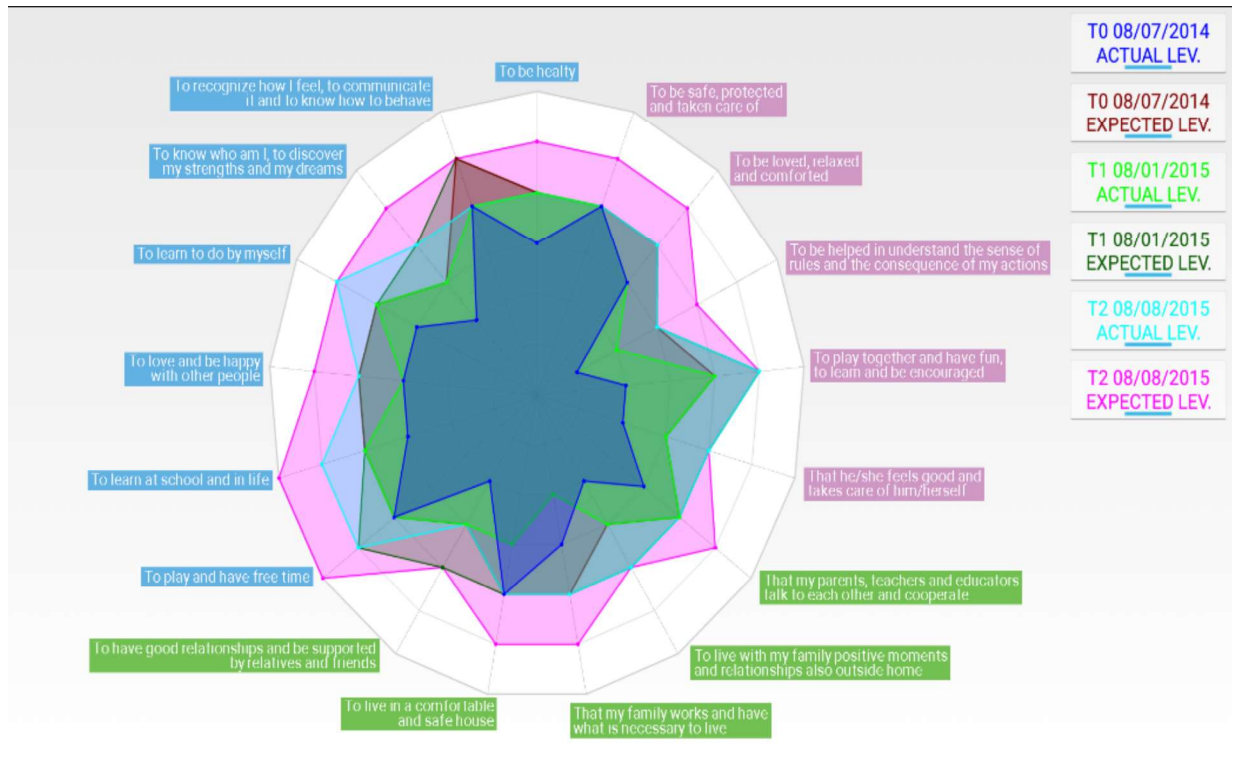



Figure 2. Radar Chart

 RPM

General Goal:
 What is the general goal you want to reach?
 Mother express the need of Filippo to play outside with other children. She says she has not time to take him to the park or to the playroom of the neighborhood.

Expected Outcome 1:
 What is the expected outcome?
 Filippo is taken 1 per week at the park to play with his friends

Actions to take to reach the outcome:
 What actions are needed to achieve it?
 Homecarer takes Philip to the park once a week and after the activity help P. to tell his experience to mum.

Responsibility:

<input checked="" type="checkbox"/> Mother	<input type="checkbox"/> Father
<input checked="" type="checkbox"/> Child/Teenager	<input checked="" type="checkbox"/> Professional Home carer
<input type="checkbox"/> Social worker	<input type="checkbox"/> Psychologist
<input type="checkbox"/> Teacher	<input type="checkbox"/> Child group facilitator
<input type="checkbox"/> Parent group facilitator	<input type="checkbox"/> Social Educator
<input type="checkbox"/> Other (specify)	

Progress and comments:
 What is the progress?

By the date:

Aug	26	2014
Sep	27	2015
-	--	----

Figure 3. Planning Page

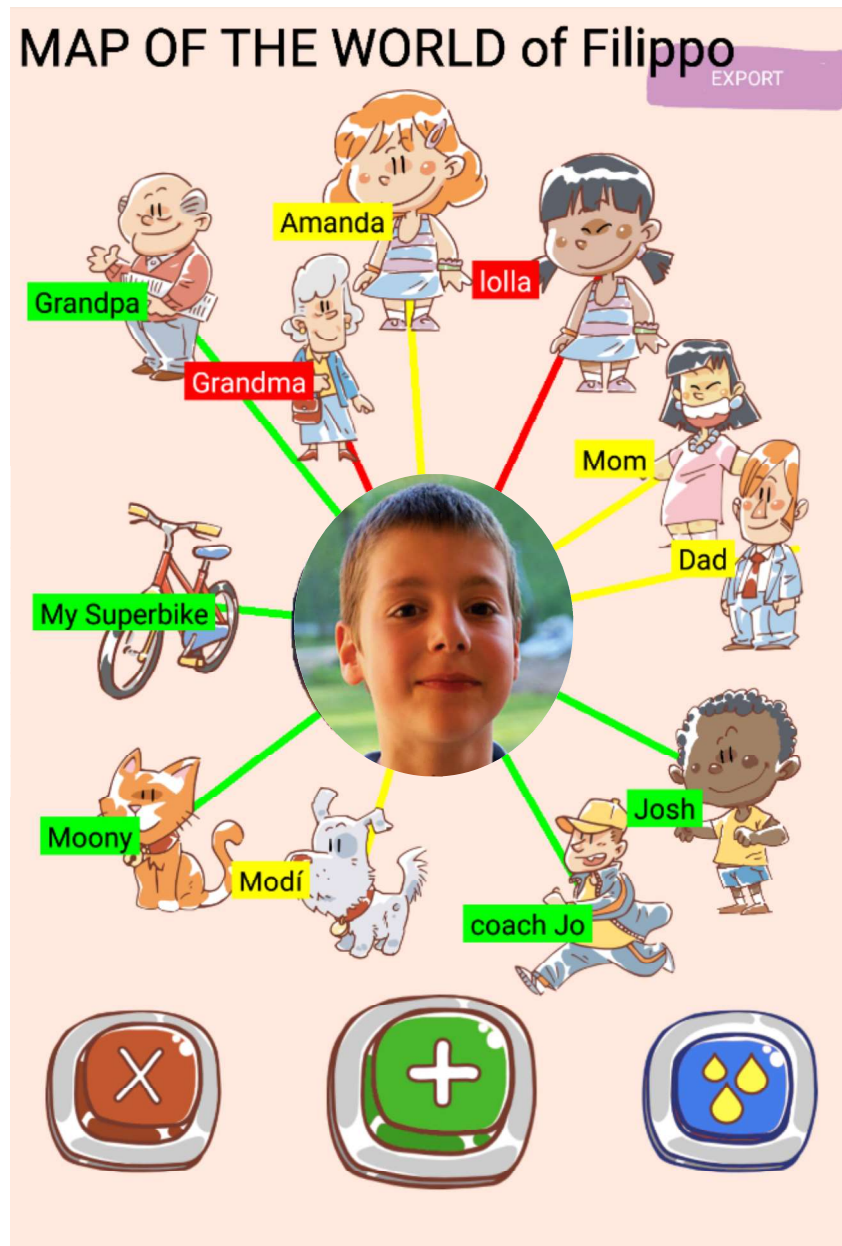


Figure 4. Ecomap

3. First Pilot: Methodology and results

After the usability test with 5 professionals (February 2014), the first pilot (2014-2015) was conducted in order to validate the main interfaces with professionals, children and parents, and to find out to which extent and under what conditions RPM-Android fosters a shared assessment and planning with children and family in care. Ten professionals, differently skilled in tablet use, and equally trained in P.I.P.P.I. and its tools, used RPM-Android with 7 children (6-10 years old) and their parents, with one 11 year-old child by himself and with two parents. Professionals were

supplied with a 7" tablet, a task list for using the app, and were asked to fill in an online questionnaire (28 items) to give feedback on the experience.

As shown in the following figure, the experience was considered positive mostly in the whole set of tasks. Only one child was not positive, due to her cognitive disability, with which the use of the tablet is not suitable. The log of meeting was not useful in one case because the app crashed.

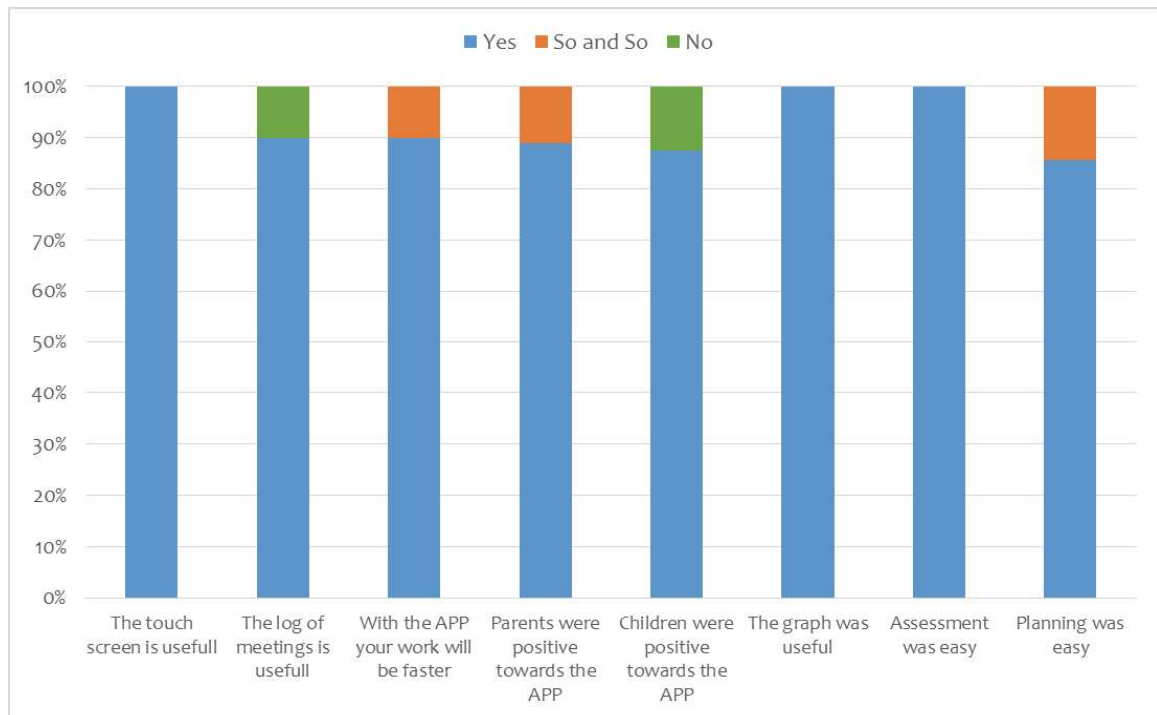


Figure 5. Quantitative feedback of professionals about using RPM-Android with children and parents

Although the touch screen is considered useful, since it fosters interaction and participation, regarding the use of the Android touch keyboard several professionals reported that it is only partly satisfying (5) or not satisfying (2); 5 of them would prefer a physical keyboard. It must be taken into account that the professionals involved were beginners in using a tablet and in addition to use it in their work sessions.

Qualitative feedbacks confirms the usefulness of RPM-Android. Professionals claim that:

- *“Parents were thrilled to experience the app [...] They welcomed the use of it with absolute relaxation, a lot more than I did.”*
- *“It was easier to show what P.I.P.P.I. is, where all the data about the family go and to check with parents the previous plan and evaluate goals.”*

- *“Using the app we wrote together outcomes and actions, so it was a real negotiation step where SMART language was used and the parents were involved in choosing words and defining actions to take.”*
- *“After a short introduction, the 9 year-old child himself presented the “triangle” to his parents.”*
- *“It was useful to take turns in using the app to let everybody give his/her voice and write it.”*
- *“It would be nice that a child could draw over the triangle directly with her/his finger.”*

4. Second Pilot: upgrade of the app and pilot design

The results of the first pilot were used to improve the application (graphic look and usability) and update new user interfaces, such as ecomaps for parents, and experimental features such as the automatic classification with convolutional neural networks of documents acquired via the device camera (Fantozzi & Maiani, 2016). The new version of RPM-Android has been tested in two roleplaying during training sessions in order to design the next pilot (2016-2017) in which:

- professionals of 5 Multidisciplinary Teams will use RPM-Android for a long period of the intervention in P.I.P.P.I. (6 to 10 months) testing the interfaces in the everyday practice and providing specific reflection on the app use during supervision meetings;
- feedback and reflection by families on the tool use (RPM-Android and other PIPPI tools) will be gathered by interviews in focus groups.

5. Discussion

The use of RPM-Android facilitates and supports practitioners in their everyday work with vulnerable families, fosters the participation of parents and children to a deeper level by focusing on the Child’s World and empowering the Navigation and Negotiation of resources, and supports the process of “doing together” as a key aspect for family’s resilient trajectory. Particular attention must be devoted to the cognitive level of the child and to the skills of professionals about both ICT and the use of tools as relational mediators. The Social Service culture needs to face the challenge of helping professionals to integrate ICT tools in their daily work with children and families, and to increase the awareness on how ICT may shape new ways of thinking and processing information, and new manners of relating to one another.

The results are encouraging and invite to keep exploring and better understanding the role of technology. Working on resilience from an ecological and culture-based approach implies to empower family participation within the research/reflection process, encouraging them to participate and to contribute, together with professionals and researchers, to the improvement of tools to support all families.

Partie 4 : Familles en difficultés et résilience

The twist of different points of view plays an active role in shaping the culture of social support for vulnerable families and it is key to keep “to write this resilient story together.”

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