Supporting family learning and interaction through information and communications technology in public libraries in Taiwan

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Abstract
This article presents findings from an action research pilot project, Involve Me, aiming to support family learning and interaction through information and communications technology in public libraries. Five workshops were developed and delivered between August and November 2013 in three public libraries in Taiwan. Technological resources used included computers and handheld devices. Four research methods: questionnaires, participant observation, recording, and social networking, were used to gather data. Evaluation of the workshops reflected a changing role of the researcher from a teacher to children to a facilitator of adult-child interaction through information and communications technology. The pilot project established that supporting family learning and interaction through information and communications technology in public libraries worked, but that further work was required. Building on the evidence collected in this project, academic-practice partnership for supporting adult-child dialogue through information and communications technology is considered an important area to go forward, which requires genuine institutional engagement.

Keywords
Adult-child interaction, family learning, ICT, preschool children, public libraries

Introduction
In Taiwan, ‘community’ has been the focus of a White Paper on Library Development (Library Association of China, 2000), where practical aspects have been proposed for promoting the role of public libraries as community builders and in support of lifelong learning. In fact there has been an increasing awareness of the importance of community engagement in the literature on librarianship and information science world-wide. For example, Sung et al. (2013) identified that community engagement and outreach services have been approaches adopted by public libraries to meet community needs and empower people. Vårheim et al. (2008), based on both quantitative and qualitative data, indicated that public libraries’ outreach activities help create trust and social capital in the community. Community involvement is also seen as an important aspect of using the library as a meeting place, which helps promote social inclusion (Aabø and Audunson, 2012; Aabø et al., 2010). Therefore, it was the intention of this study to explore how public libraries can involve communities in order to meet their needs, and further contribute to social capital.

The importance of family learning for children’s development and learning has recently been emphasized in research, policies, and practices. Family learning was defined as ‘any learning activity that involves both children and adult family members, where learning outcomes are intended for both, and that contributes to a culture of learning in the family’ (National Institute of Adult Continuing Education, 2000). Therefore, it was the intention of this study to explore how public libraries can involve communities in order to meet their needs, and further contribute to social capital.
Education, 2013: 7). As Feinstein et al. (2004) stated, there are important benefits of early childhood education for individuals and society in what education enables parents to pass on to their children. Indeed, the impact of parental involvement in and support for children’s learning and development was also highlighted in a report in the UK (Desforges and Abouchaar, 2003). Furthermore, the Organisation for Economic Co-operation and Development (OECD) (2012: 11) considered ‘the way in which [preschool] staff involve children, stimulate interactions with and between children and use diverse scaffolding strategies’, to be critical for creating a high-quality pedagogic environment in preschools. In short, adults’ perspectives, knowledge and skills are considered essential for child development and learning.

Furthermore, Crook (1994) and Siraj-Blatchford and Siraj-Blatchford (2006) have suggested that information and communications technology (ICT) provides a good context for promoting child development and learning through playful dialogue. Tablet technologies and smart phones in particular, and appropriate accompanying software applications (Apps) have been shown to provide contexts for playful exploration and educational value for preschool children (Cohen et al., 2011; Yelland and Gilbert, 2012).

While research has evidenced the benefits of using ICT to support family learning both at home and in preschool, little academic research has been found on the potential of library services to support this (Kirk et al., 2004; Sung and Siraj-Blatchford, 2013). Nevertheless, such evidence can be drawn from charities and non-government organizations. According to the OECD (2012: 12), community agencies can act as a ‘connector’ between the home and preschools; a ‘social network’ to support parents (especially for disadvantaged families); an ‘environment’ to promote social cohesion and public order; and a ‘source of resources’. A public library, as a community anchor, fits these roles very well. Additionally, the cultural sector, including the public library, is regarded as an ideal place to promote family learning, as it provides a neutral, safe learning environment, qualified and passionate staff, and various collections as learning resources (National Institute of Adult Continuing Education, 2011). Specific examples of family learning activities in public libraries include ICT, homework support, family history, literacy, arts and crafts, and numeracy (Kirk et al., 2004).

Theoretical framework
Sustained shared thinking is considered an effective pedagogic strategy for child development and learning, and was defined by Siraj-Blatchford (2007: 18) as ‘an effective pedagogic interaction, where two or more individuals “work together” in an intellectual way to solve a problem, clarify a concept, evaluate activities, or extend a narrative’. These shared activities could occur between children with peers, parents, caregivers, or other adults. Appropriate use of ICT was evidenced to help enhance sustained shared thinking (Sylva et al., 2010).

Play is central to sustained shared thinking in early childhood, and it is recognized as the leading context of children’s early learning and development. In the words of Vygotsky (1987: 103): ‘The child moves forward essentially through play activity. Only in this sense can play be termed a leading activity that determines the child’s development’. It is essentially through play that children learn to develop creativity, work collaboratively, and communicate with others. Purposeful selection and use of ICT was shown to promote playful learning (Siraj-Blatchford and Smith, 2012).

Indeed, areas of creativity, collaboration and communication (three Cs) have attracted substantial discussion in the early childhood education literature. Siraj-Blatchford (2007), based on the research findings from the Researching Effective Pedagogy in the Early Years (REPEY) study in the UK, considered the three Cs to be combined in sustained shared thinking at a practical level. Creativity is closely linked with imagination, and communication and collaboration characterize children’s dialogue and interactions when they engage with others.

Built on these evidence-based early childhood education principles that support the effective pedagogic strategy of sustained shared thinking, this action research pilot project aims to support family learning and interaction through ICT in public libraries. The term ‘interaction’ was adopted throughout this article to support sustained shared thinking and to keep consistency in the language used. Based on Early Childhood Education and Care Act (Ministry of Education, 2011) in Taiwan, preschool children are defined as two to six years old in this study.

Methodology
In order to achieve the research aims, the study has adopted an action research approach to solve problems and make changes to the current social practices, through action, research, and participation (Greenwood and Levin, 1998). The intention of the pilot, as a trial, was to investigate how the idea of supporting family learning and interaction through ICT in public libraries would work in practice. This section presents a rationale for applying action research to the study and describes the stakeholders, research sites, and data collection and analysis procedures used.

Action research, originating from Kurt Lewin, has been differently defined in various practices (Kelly, 1985). A helpful and succinct definition was given by Kemmis and McTaggart (1988: 5):
Action research is a form of collective, self-reflective inquiry that participants in social situations undertake to improve: (1) the rationality and justice of their own social or educational practices; (2) the participants’ understanding of these practices and the situations in which they carry out these practices.

The intervention study was developed involving a cyclical process of action research: ‘planning, acting, observing, and reflecting on the changes in the social situations’ (Noffke, 1995: 2). As shown in Table 1, five Involve Me workshops were clustered into two rounds according to the time sequence: the initial two workshops as the first round, and the latter three workshops as the second round. Accordingly, two rounds of evaluation took place in this study.

The researcher acted as a participant facilitator, whose main role was to develop workshops, deliver lectures, support adult-child interaction through ICT, and conduct observations. Three temporary research assistants were recruited to help observe and record the adults’ behaviour, children’s behaviour, and their interaction through ICT during the workshops. A critical friend, from the field of early childhood education, supported the evaluation process, acted as a consultant, and offered useful resources for developing the workshops. As a participant observer, not only was the primary author able to provide first-hand data on the realities of current practice (Turnock and Gibson, 2001), but she was also able to provide an ‘insider perspective’ (Bowling, 1997; Merton, 1972). To this end, the objectivity of the data collected from the project might be questioned. Hence, while the primary author of this article has provided an insider account of the process of the action research project, the co-author who collaborated in the initial development of the project, acted as a critical friend at the analysis stage, and provided a critical outsider perspective (Merton, 1972).

Workshop participants included children aged two to six years and their caregivers (e.g. librarians, library volunteers, preschool teachers, and parents). Whilst the workshops were advertised through leaflets, social media (i.e. Facebook), the Internet and local newspaper two weeks in advance, the majority of participants were recruited from existing library users at the time of the visit. See Table 1 for a breakdown of workshop participant numbers. Their participation in the workshops was recorded. The questions they raised and feedback offered during and after the workshops were used to inform the subsequent modification of the workshop.

Data collection methods used consisted of the following:

- Questionnaires were administered at the start of the intervention to provide a baseline, identifying the frequency and type of involvement that caregivers had with their children when using ICT at home.
- A participant observation approach, where the researcher conducts observations as a participant (Creswell, 2008), was employed to interact with preschool children and caregivers while observing the actual behaviours of workshop participants, and to describe the process and their perspectives.
- Recording, including field notes, audio and video tapes and photographs, was conducted to corroborate and substantiate the data evidence from participant observation. Field notes, both descriptive and reflective, were written up within 24 hours after the workshop took place.
- The workshops were intended to provide a learning opportunity for those present. For much wider application and potential, observational learning (Bandura, 1977), also known as vicarious learning, was therefore considered as an integral element of this study. Good practices of adult-child interaction through ICT in the workshops were video recorded in order to build an online community of practice (Lave and Wenger, 1991) through social media (i.e. Facebook). It was intended that people should learn through observing, remembering, and imitating good practices posted on the Involve Me project’s Facebook group page.

### Table 1. Breakdown of workshop participant numbers.

<table>
<thead>
<tr>
<th>Round</th>
<th>Site</th>
<th>Date</th>
<th>Librarian</th>
<th>Library volunteer</th>
<th>Preschool teacher</th>
<th>Parent</th>
<th>Children</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kinmen Public Library</td>
<td>31 Aug</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>13</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>National Library of Public Information</td>
<td>24 Sep</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>2</td>
<td>Taipei Public Library</td>
<td>27 Sep</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>02 Nov</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29 Sep</td>
<td>3</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>8</td>
<td>26</td>
</tr>
</tbody>
</table>

*Although there were three workshops taking place in the National Library of Public Information, no one participant attended more than one session.*
In total, 41 copies of the questionnaires were collected, plus a vast amount of qualitative data. More details about the data collected are given in Table 2. The qualitative data collected were analysed and coded, in an inductive fashion, using the thematic analysis procedure described by Braun and Clarke (2006). Additionally, constant comparisons (Glaser, 2002) were made between data (e.g. coding the second data source with the first in mind) and between data and theoretical samples (e.g. coding subsequent data with the emerging theory in mind).

Written consent was obtained from the three public libraries for the workshops to take place. Additionally, verbal consent was sought from all study participants for data collected to be used in presentations and publications, prior to any data collection activities in this study. Study participants were also informed of their rights to withdraw from the activities at any point of their choice. All information provided by study participants was kept confidential and anonymous.

**Questionnaire analysis**

The quantitative data presented here were not for representativeness or generalization but for the purpose of understanding study participants’ behaviours in using ICT at home. The results indicated the frequency and type of involvement that caregivers had with their children when using ICT at home.

Table 3 shows the frequency of adults and children using Apps/computer games together. It is clear that ‘less than once per week’ accounted for the majority (approximately 29%), which was followed by ‘2–3 times per week’ (approximately 26%). Activities occurring during their interactions included taking and looking at pictures, reading electronic books, watching video clips, gaming, searching for information, and drawing, as described by study participants in the questionnaires.

Table 4 shows the amount of time children spent in front of computers (including desktops and laptops) and the percentage of this time that caregivers spent with them. Except 16% of children in the workshop who had never been exposed to computer screens at all, about 43% of children’s computer screen time was limited to half an hour a day. Only 5% of caregivers spent 76–100% of this time sitting and talking with children.

Table 5 shows the amount of time children spent in front of tablets and percentage of this time that caregivers spent with them. Nearly 36% of children had never spent time in front of tablets, and about 41% of children spent less than half an hour a day in front of tablets. Interactions between adults and children in front of tablets were rare, with only 10% of caregivers spending 76–100% of this time sitting and talking with children.

**Workshops**

The aim of the Involve Me workshops was to support adults and children using ICT (including computers and handheld devices) together. The workshops, consisting of lectures and adult-child interaction sessions, were developed with the following objectives in mind:

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**Table 2. Breakdown of data collected.**

<table>
<thead>
<tr>
<th>Site</th>
<th>Date</th>
<th>Code</th>
<th>Questionnaire (copy)</th>
<th>Field note (file)</th>
<th>Photo (file)</th>
<th>Videoa (file)</th>
<th>Audio (file)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinmen Public Library</td>
<td>31 Aug</td>
<td>KM</td>
<td>15</td>
<td>1</td>
<td>46</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>National Library of Public Information</td>
<td>24 Sep</td>
<td>TC01</td>
<td>5</td>
<td>1</td>
<td>65</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>27 Sep</td>
<td>TC02</td>
<td>5</td>
<td>1</td>
<td>29</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>02 Nov</td>
<td>TC03</td>
<td>6</td>
<td>1</td>
<td>78</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Taipei Public Library</td>
<td>29 Sep</td>
<td>TP</td>
<td>10</td>
<td>1</td>
<td>25</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>5</td>
<td>243</td>
<td>44</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*aThe length of the videos varied from 10 minutes to 1.5 hours.

**Table 3. Frequency of adults and children using apps/computer games together.**

<table>
<thead>
<tr>
<th>Question</th>
<th>Site</th>
<th>KM (n=15)</th>
<th>TC01 (n=5)</th>
<th>TC02 (n=5)</th>
<th>TC03 (n=6)</th>
<th>TP (n=10)</th>
<th>Total (n=41)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do you play Apps/computer games with (your) child?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• at least once per day</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>• 4–6 times per week</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>• 2–3 times per week</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>• less than once per week</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>• never</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>
to present the value of appropriate usage of ICT with preschool children;
• to demonstrate evidence-based principles of child development and learning; and
• to identify Apps and software that support adult-child interaction.

Technological resources used in the workshop consisted of computers (i.e. desktops and laptops) and handheld devices (i.e. smartphones and tablets). While workshop participants were encouraged to bring their own resources, the project provided three laptops and two tablets (iPads) for use. Free Apps (i.e. Me Books and Our Story) and software (i.e. Duck Builder and Souptoys) were selected for use to stimulate adult-child interaction and generate enjoyment.

The selected Apps/software were combined with different activity units, embedded with evidenced-based principles in early childhood education, as explained in the Theoretical framework section (see Table 6). It is worth noting that the technological resources and Apps/software were specifically selected and used as a catalyst to support adult-child interaction.

Five Involve Me workshops took place between August and November 2013 in three public libraries in Taiwan, that is, Kinmen Public Library, National Library of Public Information and Taipei Public Library respectively (see Table 1 above). Each workshop lasted two to three hours. Both National Library of Public Information and Taipei Public Library, located in urban areas, were selected as they aim to promote lifelong learning and reading, including through digital resources, thus helping to bridge the digital divide. Kinmen Public Library, located in a rural area, was selected to provide a different context from the other two libraries.

### Table 4. Computer screen time.

<table>
<thead>
<tr>
<th>Question</th>
<th>Site</th>
<th>KM (n=15)</th>
<th>TC01 (n=5)</th>
<th>TC02 (n=5)</th>
<th>TC03 (n=6)</th>
<th>TP (n=10)</th>
<th>Total (n=41a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How long does (your) child spend in front of computers (including desktops and laptops)? (average hours/a day)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• more than 2 hours</td>
<td></td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>• approximately 2 hours</td>
<td></td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>• approximately 1 hour</td>
<td></td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>• less than 0.5 hour</td>
<td></td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>• never</td>
<td></td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>How much of this time do you spend sitting with them and talking about it?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 0–25 %</td>
<td></td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>• 26–50 %</td>
<td></td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>• 51–75 %</td>
<td></td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>• 76–100%</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

*41 copies of questionnaires were collected with questions unanswered by some participants.

### Table 5. Tablet screen time.

<table>
<thead>
<tr>
<th>Question</th>
<th>Site</th>
<th>KM (n=15)</th>
<th>TC01 (n=5)</th>
<th>TC02 (n=5)</th>
<th>TC03 (n=6)</th>
<th>TP (n=10)</th>
<th>Total (n=41a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How long does (your) child spend in front of tablets (e.g. iPads)? (average hours/a day)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• more than 2 hours</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>• approximately 2 hours</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>• approximately 1 hour</td>
<td></td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>• less than 0.5 hour</td>
<td></td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>• never</td>
<td></td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>How much of this time do you spend sitting with them and talking about it?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 0–25 %</td>
<td></td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>• 26–50 %</td>
<td></td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>• 51–75 %</td>
<td></td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>• 76–100%</td>
<td></td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

*41 copies of questionnaires were collected with questions unanswered by some participants.

### Round 1 evaluation and response

Not every child had his or her caregivers’ company and involvement in the workshops and at least 90% of parents had no computers or handheld devices with them. At the
start, the researcher often acted as a ‘teacher’ to the children, engaging in a dialogue with them and encouraging group play. However, given the researcher’s aim to support the parents’ dialogic capabilities with their children through ICT at home, the researcher was increasingly aware of her role as a facilitator (i.e. for there to be less reliance on the researcher’s dialogue with children). By so doing, the majority of parents acted as active participants in the following workshops, practising the skills to interact and have a dialogue with their children, so that they could apply the skills in their children’s home learning environment.

It was mistakenly assumed by the researcher that most workshop participants would possess basic ICT skills. However, workshop participants frequently asked questions related to how to download and use the selected Apps/software. Step-by-step guidance on how to search and download selected Apps/software was incorporated into the second round of workshop curriculum hand-outs. Also, specific guidance as to how to use each selected App/software was demonstrated through the presentation screen at the workshop.

From talking to some workshop participants, the researcher also found that some families had no ICT at home. Furthermore, although a few parents showed willingness to learn, they had limited basic ICT skills (e.g. using computers and surfing the Internet). In order to help those individuals, the researcher started to pay weekly visits to the National Library of Public Information for two hours from October 2013. The rationale of selecting the National Library of Public Information for weekly visits was built on convenience and financial limitations. When the research was conducted, the researcher was based in Taichung, in the middle of Taiwan, which is geographically close to the selected library. Not only did the researcher offer access to the selected Apps/software and necessary technological resources, but she also facilitated adult-child interaction through ICT and taught parents basic ICT skills where necessary.

**Round 2 evaluation**

While approximately 10% of parents passively listened to lectures and observed their children’s interaction with others, meaningful dialogue between active adults and children was evidenced in the workshops. For instance, a mother communicated with her two boys like friends, as she explained ‘I talk with, not to, my sons’ (Field note, Round 3.53). Indeed, as observed in the workshop, she tended to use suggestions, questions and discussion, not simply commands or orders, when talking with her sons. Another mother slowly aroused her daughter’s curiosity about the selected Apps/software by drawing her daughter’s attention to something familiar to her and gradually encouraged her to speak and explore the Apps/software. Furthermore, a father patiently guided his shy daughters to use different Apps and software, asking them questions, encouraging them to think and express themselves, and respecting their opinions. Another father worked together with his son to solve problems and they took turns controlling the keyboard and mouse. It was also observed that some children played collaboratively (e.g. sharing tips) and competitively (e.g. earning scores) to complete tasks (e.g. Souptoys) and solve problems (e.g. Duck Builder). As a result, the above-mentioned participants sustained involvement in the workshop for two to three hours, generated quality dialogue and continuous laughter, and enjoyed and had fun during the adult-child interaction session.

Both adults and children played very important roles in the process of adult-child interaction. Some caregivers were unsure whether their children should be using ICT. In this case, adults’ attitude and perspectives towards children’s usage of ICT were important. Some parents also respected their children’s decisions if children did not seem interested in using ICT. Hence, children’s engagement and preferences for ICT were also worthy of exploration.

It was clearly observed in the workshops that the majority of children physically and emotionally engaged with the interaction through ICT with adults, which indicated that they were curious about, interested in, and embracing the new technologies. The idea of ‘playing games’ also acted as a main reason for some children to partake in the workshop. Whilst every child has different preferences, it was noticed that for the majority of children, Apps/software with sounds and recording capabilities were more likely to attract their attention.

### Table 6. Selected Apps/software.

<table>
<thead>
<tr>
<th>App/Software</th>
<th>Activity unit</th>
<th>Rationale of selection</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Me Books</td>
<td>Creating a story</td>
<td>Spending time together thinking about a story and sharing ideas</td>
<td>Tablets/smart phones</td>
</tr>
<tr>
<td>Duck Builder</td>
<td>Simulation</td>
<td>Having fun and stimulating discussion</td>
<td>Desktops/laptops</td>
</tr>
<tr>
<td>Our Story</td>
<td>Remembering together</td>
<td>Recording outdoor experiences that adults and children have together with ICT</td>
<td>Tablets/smart phones</td>
</tr>
<tr>
<td>Souptoys</td>
<td>Role play</td>
<td>Developing children’s skills and capabilities in terms of ‘object substitution’ or ‘symbolic manipulation’</td>
<td>Desktops/laptops</td>
</tr>
</tbody>
</table>
Not only did children have fun from play, but they also developed their thinking and learning. For instance, boys aged six learnt and developed cognitively through trial and error while building a duck in the simulation game. Children aged five and six appreciated their capabilities of writing Chinese characters and practised the skills when describing the pictures which they took in Our Story. Children aged three and four learnt new words, shapes, colours and sounds by playing symbols in Souptoys with their caregivers. The children appeared to gain satisfaction and confidence from play. For example, once children completed their work, such as recording singing and making stories, they appeared pleased and proud of themselves, by repetitively listening to the recording and showing their stories.

Adults’ encouragement was significant. The majority of children were able to express their opinions when asked for their preferences, for example ‘which part of the duck would you like to change’ (Video annotation, Round 1.31), ‘how would you like to decorate your Christmas tree’ (Audio annotation, Round 3.67), and ‘what do you want to play next’ (Video annotation, Round 5.37). Although some children tended to say ‘I don’t know’ (Video annotation, Round 5.35), the more adults asked open-ended questions, the more children thought and talked.

During the adult-child interaction session, children observed, learnt, and practised the selected Apps/software. It was interesting to see children aged two, as ‘digital natives’, spontaneously swiping touch screens to play sounds and create movement. Observational learning did not only occur for the children but also with the parents in the workshop. Parents learnt from the facilitator and other parents how to initiate and sustain dialogue with their children through ICT. For wider application and potential, good practices were recorded and uploaded to the Involve Me Facebook group page. At the time of writing (November 2013), the Involve Me Facebook group has 428 members, with nearly every post liked and positively commented by group members. One mother who learnt skills from an Involve Me workshop and Facebook group page, recorded her two sons’ dialogue at home and shared the post on the Involve Me Facebook page.

Furthermore, the role of public libraries in supporting adult-child interaction through ICT has also been observed. First, by agreeing for the workshops to be held in the libraries, it shows that they endorsed the ethos of supporting children’s learning through ICT and held an open mind about emerging library services using ICT. As a librarian explained, hosting an Involve Me workshop matched the library’s effort to promote children’s digital learning (Field notes, Round 4.25). Second, in addition to providing a modern, clean and comfortable space, each of the libraries, except the one in a rural area, provides public access to ICT, e.g. desktops, laptops, and tablets, which potentially helps bridge the digital divide. Third, public libraries are generally conceived as safe, informal, and learning places for parents and children. As a mother said, ‘I take my two sons to the Library every Friday afternoon for learning. They enjoy reading and exploring knowledge’ (Field notes, Round 3.28).

The aforementioned offerings provide essential mechanisms to enhance libraries’ educational, informational and social roles in developing and implementing Involve Me workshops. In terms of an educational role, the researcher was regarded by a lot of workshop participants as a professional person for training parents in ICT skills, recommending appropriate Apps/software for both parents and children, and providing proper facilitation for adult-child interaction through ICT.

In terms of an informational role, workshop participants tended to consider the researcher as a source for learning. In terms of a social role, the workshops provided valuable opportunities for people to meet, talk, and learn from each other, and for children to play and learn together. As observed in the workshops, the influence of group play was powerful, which encouraged high children’s participation, continuous dialogue, and exciting laughter. Interestingly, family learning was evidenced in a workshop: a five-year-old girl, having acquired the skills to use Our Story, taught her two sons’ dialogue at home and shared the post on theInvolve Me Facebook page.

Accordingly, overwhelmingly positive comments on the workshops were obtained from public librarians, caregivers and preschool children, as follows:

You’ve [the researcher] done a great job. (Public librarians, Field notes, Round 1.56; Round 2.68)

Those participants’ attendance indicated that they must be keen to learn something from the workshop, as you [the researcher] didn’t offer materials like the Bookstart program does. (Public librarian, Field notes, Round 4.76)

It’s very nice that you’re [the researcher] willing to go out of the university and give such a workshop in the real world. (Caregiver, Field notes, Round 3.62)

This is a really good event to be hosted in the library. (Caregiver, Field notes, Round 3.65)

I’ve learnt a lot from the workshop. Thanks. (Caregivers, Audio annotation, Round 4.89; Field note, Round 3.71)

The selected Apps and software were appropriate for encouraging dialogue and fun. (Caregivers, Field notes, Round 3.75)

When are you [the researcher] coming again? (Children, Field notes, Round 1.65; Round 5.89)

I really had fun. (Children, Field notes, Round 1.48; Round 4.85; Round 5.96)
Discussion and conclusions

While research has evidenced the benefits of using ICT to support family learning both at home and in preschool, little academic research has been found on the potential of library services to support this (Kirk et al., 2004; Sung and Siraj-Blatchford, 2013). Nevertheless, such evidence can be drawn from charities and non-government organizations. To this end, this study set out with the aim of supporting family learning and interaction through ICT in public libraries. The aim was achieved by conducting an action research pilot project to investigate how this would work in practice. Based on the two rounds of evaluation, this section discusses lessons learnt regarding supporting family learning and interaction through ICT in public libraries and proposes recommendations for further work.

Genuine partnership working between academics and practitioners

Although the selected public libraries provided a space for hosting the workshops and public access to ICT, it could be argued that these offerings remained passive. As indicated by the research of Sung et al. (2013), genuine partnership does not refer to two parallel organizations working separately. Working together closely and sharing resources are key to developing person-focused relationships and achieving real impact. Furthermore, under the current hierarchical structure of public libraries, the research of Sung et al. (2013) identified the importance of adapting authority and accountability structures in order to change organizational culture.

Empirical data have shown that the Involve Me project worked. In order to meaningfully support the public libraries’ informational, social, and educational roles and effectively meet institutional objectives, the importance of institutional engagement cannot be neglected. It is suggested that library and information science academics and practitioners work together closely to understand the institutional objectives, and develop and deliver further workshops.

Offering training for library staff and volunteers

In order to support parents’ capabilities of interacting with their children through ICT at home, the researcher changed her role as a ‘teacher’ to the children at the first round of workshops, to that of a ‘facilitator’ of adult-child interaction through ICT at the second round of workshops. It was observed that caregivers then started to learn to use the selected Apps/software and engage with the dialogue with their children. Meaningful dialogue between adults and children was evidenced in the workshops.

It was noticed that nearly 90% of the workshop participants were preschool children and their parents. Library staff and library volunteers only accounted for about 10%. However, for wider application and impact, there is a need to offer training on the support of adult-child interaction through ICT for library staff and volunteers in order for them to pass on the relevant knowledge and skills to caregivers in all public libraries. Taking into account that library services are provided by the public sector, institutional support and encouragement for library staff and volunteers to partake in the training is needed, which is closely linked with the previous recommendation.

Building a community of practice for observational learning

Observational learning occurred both in the workshops and on the Facebook page. As evidenced in the workshops, children observed, learnt, and practised the selected Apps/software. Parents learnt from the facilitator and other parents how to initiate and sustain dialogue with their children through ICT. Observational learning has also been extended to social media. For example, a mother, who participated in the workshops and joined the Involve Me Facebook group membership, recorded her two sons’ dialogue at home and shared the post on the Facebook page.

Building on the success of the current pilot project and for much wider application and potential, it is suggested that the library develop an online community of practice (Lave and Wenger, 1991) for showcasing good practices of adult-child interaction through ICT, where people can learn through observing, remembering, and imitating (Bandura, 1977). Additionally, people can discuss their needs, exchange ideas, and share their experiences.

In brief, the action research pilot project established that supporting family learning and interaction through ICT in public libraries worked, but that further work was required. Building on the evidence collected in this project, academic-practice partnership for supporting adult-child interaction through ICT is considered an important area to go forward, which requires genuine institutional engagement.

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Note
1. Library Association of Republic of China (LAROC) was known as Library Association of China (LAC) prior to 2005.

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