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## Heads in the Cloud: An Example of Practice-Based Information and Communication Technology in Child Welfare

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### ABSTRACT

Changes in information and communications technology (ICT) in human services have accelerated rapidly and have elicited academic concern about the impact on practice, changes in approaches to implementation, and a shift to user-led development. This article describes the development of ICT by a nongovernment child welfare agency over the past two decades. It is guided by a social constructionist view of technology in which technology is shaped by social factors, but in turn shapes the “social” implementation as requiring the integration of two distinct technologies: a standardized framework for practice and the computer. Both technologies had to be carefully aligned to workplace culture, but the interests of workers have not been allowed to dominate those of and children and families. The organization of work has had to change. This article explores the agency’s experience drawing on theories of implementation of ICT in human services.

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The evolution of information and communications technology (ICT) has been transformative in social workers’ lives over the past two decades; however, the social workers’ use of ICT has been slow to develop and mired in controversy. There have been expensive failures of software development, frustration among practitioners and a paralyzing academic debate.

This article describes attempts by social workers at the child welfare agency to explore ICT’s capacity to enhance practice and improve outcomes for children and families. It is based on a social constructionist view of technology in which social processes shape technology and technology affects social organizations. I draw on theorists who examine why social workers take up particular aspects of technologies (Hutchby, 2001, 2003) and how implementation of computer technology needs to be attuned to the culture of the workplace. The resulting computer program has been used in this busy practice agency for over 18 years, its efficacy has been independently evaluated and it now used voluntarily by 22 similar agencies. The initial ICT project, and its

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ongoing evolution into a Cloud-based system, have only been possible because of social workers' conviction that ICT could improve outcomes for children and families—it has not been driven by either managers to call services to be accountable or the market (Ife, 1997).

In examining how social workers take up technology, I examine ICT as an amalgamation of two types of technologies: computers and standardized approaches to social work. Both technologies have shaped the workplace including changes to agency structure, development of techniques for consultation between social workers and ICT professionals, support of users, and evolution in skills in cross-disciplinary work. Unlike current trends in user-led ICT, the role of academic social workers has been important in treating children and family interests as sometimes at odds with workers' professional interests (Ife, 1997).

### **Background: The use of ICT in child welfare**

The past five decades have seen rapid changes in the nature of ICT and its use in social work settings. Schoech describes four eras of computer use, each with their own challenges and controversies (Schoech, 2014). From the 1960s to the early 1990s, statistical analysis dominated the use of computers; this was followed by interest in management information systems and the early support of practitioner interaction with clients. Subsequently, and until 2010, the Internet has dominated and offered new possibilities through websites, user-friendly browsers, search engines, and robust communication applications. We now find ourselves in the new era of mobile technology, including smartphones, tablets and apps, social media, wireless connectivity, and cloud computing.

The use of ICT in child welfare during the past two decades has been problematic internationally, despite continued pressure on data for administrative decisions strong, and incentives for social workers to exploit the efficiencies of ICT which are now ubiquitous in the community. As the technologies have developed and become more widespread, commentators, who have previously been skeptical, are now more likely to be calling for applications that meet practitioner information needs (Gillingham, 2014, 2015) and assist communication with children and their families (Tregeagle, 2007; Parrott & Madoc-Jones, 2008).

### ***The debate about ICT in child welfare***

The development and use of ICT in social work has proved to be complex and slow (Carrilio, 2005), and from the 1990s there has been extensive academic concern about the dominance of managerialism in ICT use (Garrett, 2004; Parrott & Madoc-Jones, 2008, p. 1; Parton, 2008). These objections have been

neatly summarized by Steyaert and Gould (2009, p. 741) as consisting of two distinct threads:

[T]he “humanist” case is an objection to technology as representing an intrusion into the person-centered project of social work displacing the authenticity of the encounter between worker and service user and replacing it with the preoccupations of accountability and bureaucratic efficiency (Burton & van den Broek, 2009) ... [T]he “anti-humanist” approach ... focuses on the role of technology in regulating the subjectivity of the person, extending the capillaries of power between actors.

The debate has been strongest in the United Kingdom. Parton (2008) has explored the impact of databases on knowledge in child welfare and argued that the “database culture” has been made stronger with the use of ICT and has led to diminution of professional discretion. He claims that social work as a profession is being fundamentally altered: “Not only can ‘the subject’ of social work knowledge be seen as being in the process of transformation into a series of discrete categories but also the ‘social’ nature of the work is disappearing” (Parton, 2008, p. 263).

Such concerns have been reflected in policy, with calls for a shift away from a child welfare environment dominated by “over-bureaucratized [systems], and concerned with compliance, to one[s] that keeps a focus on children, checking whether they are being effectively helped” (United Kingdom Department of Education, 2011, p. 5). In the United States, Zhang and Gutierrez (2007) have pointed to practitioner concerns about how data will be used. In Australia, this debate has been taken up by local researchers (Burton & van den Broek, 2009; Gillingham & Humphreys, 2010). Here, research has focused particularly on the introduction of electronic decision-making tools that were developed by the Children’s Research Center in Wisconsin and used in a number of Australian jurisdictions (Gillingham, 2009, 2011a, 2011b, 2013, 2014; Gillingham & Humphreys, 2010). Researchers have been largely negative about electronic structured decision making — “tools are not being used as intended by their designers and in fact, tended to undermine the development of expertise by child protection workers” (Gillingham & Humphreys, 2010, p. 2598).

The concerns described previously have been reinforced by disturbing examples of ICT projects that have failed to engage social workers and have proved to be an expensive waste of resources (Ince & Griffiths, 2011; White, Westell, Broadhurst, & Hall, 2010). There have been practical problems with the United Kingdom’s Integrated Children’s System (ICS) including system crashing, the collection of poor-quality statistical data, the large amount of time taken to develop and use the system, and fundamental concerns about “an atomization of information leading to social workers’ inability to see the bigger picture, a large amount of form filling ... [and] a rigid approach to a process involving a human activity” (Ince & Griffiths, 2011, p. 1499). These observations have been accompanied by reports in other areas of

human services, such as a juvenile offender management information system that had an initial budget of £234 million and was abandoned when expenditure reached £700 million (Ince & Griffiths, 2011). Such failures have also occurred in Australian states (Singhai, 2013).

Nevertheless, other commentators have maintained interest in the use of ICT to improve the delivery of services (Cheers, Fernandez, Morwitzer, & Tregeagle, 2011; Cheers & Morwitzer, 2006). Proponents of ICT have described its role in facilitating research in individual workers' practice, developing service collaborations, and facilitating the collection of otherwise unavailable data to assist reform of individual services and systems (Cheers & Morwitzer, 2006; Clare, 2003; Wise, 2003). Internationally, there are emerging examples of creative developments such as computer-assisted questionnaires to aid participation in care planning (Morgan & Fraser, 2010), the impact of portable computers in home visits (O'Connor, Laszewski, Hammel, & Durkin, 2011), computers in emergency interventions to retrieve and exchange information quickly, and use of Internet-based communication in foster care supervision (Dodsworth et al., 2013). This use of ICT has not apparently obstructed practitioners undertaking their day-to-day work (Rasanen, 2014).

By 2015, the debate about ICT in child welfare appears to have shifted amid calls to develop better ICT for workers. For example, the first recommendation of the Munro review—a major review into child protection in the United Kingdom—was to encourage local innovation and to incorporate professional judgement in developing ICT: “A major challenge for local redesign is therefore to develop, with social workers, new ICT systems to meet their case recording needs ... based on human centred analysis of what is required by frontline workers” (United Kingdom Department of Education, 2011, Clauses 7.16–7.17).

There is also a growing understanding that there may be a range of ways that can standardize the social work systems underpinning ICT systems. A Scandinavian study has identified wide variations in approaches to professional discretion in different decision-making tools (Hoybye-Mortensen, 2015). The researcher concludes that: “... it seems as though forms based on theoretical foundation have greater impact on caseworkers' room for discretion than those based on an understanding of information as neutral and objective” (Hoybye-Mortensen, 2015, p. 1).

This finding is important to the debate. It may mean that findings related to computerized structured decision making should not be conflated with computer uses which employ other forms of social work standardization.

The debate described previously has focused most strongly on social worker's and agency requirements, with relatively little interest in broadening the communication capacity of ICT to include children and families more actively in interventions. This is despite the growing opportunities that mobile technologies can offer in developing the active engagement of children and

families in child welfare processes (Tregeagle, 2010a; Tregeagle, 2011; Tregeagle & Darcy, 2007). One explanation of this failure to engage children and families is offered by Ife (1997), who postulates that there may be a fundamental tension between professionalism (in this case, social workers) and commitment to participatory strategies.

### ***Developing theory to understand why technologies are taken up***

The debate on social workers take up of ICT is part of a wider question about whether technology itself leads to “take up” or social factors shape the technology and how it is accepted. At one extreme, statements made by “essentialist” theorists claim that technologies lead social change and that take up of technologies is inevitable and positive: “techno-determinism coupled with a utopian vision of a techno-future” (Hutchby & Moran-Ellis, 2001, p. 4). At the other theoretical extreme, social constructionists view technologies as the result of complex social processes (Hutchby, 2001; MacKenzie & Wajcman, 1993). The view taken in this article is that use of technology is both the result of, but also shapes, social processes. Factors that shape technology include workplace practices and values as well as other technologies (MacKenzie & Wajcman, 1993).

### ***Growing understanding of the challenges of implementation in child welfare***

This view that the adoption of particular technology has shaped social processes means that success in implementing technology must be well attuned to the social factors of the workplace. White, Hall, and Peckover (2009) describe the issues involved:

[P]ractitioners make strategic and moral decisions about whether and when to complete [ICT implementations; these decisions] are based on assessments and accountabilities, their level of child welfare competence and their domain-specific knowledge, moral judgements and the institutional contexts in which these are played out (White, Hall, & Peckover, 2009, p. 1197).

Implementation theorists have attempted to articulate what technologies need to explore for successful take up of a technology. Zhang and Gutierrez (2007) propose three factors that affect use of ICT in human services settings:

- “attitudes of practitioners” towards the personal usefulness of the ICT, the organizational usefulness of the technology and the benefits brought to service users
- “subjective norms,” or social pressure to use ICT by people of influence in welfare agencies—these people are most likely to be senior managers, supervisors, and peers

- “perceived behavioral control,” that is workers’ confidence in the feasibility of ICT implementation. These beliefs involve social workers’ perceptions that they have the competency, time, funds, equipment, technological support, and training to use ICT.

Further, Smith and Eaton (2014) propose that ICT needs to be specifically attuned to organizational culture. They have developed the concept of “communities of practice” to assist in understanding the implementation of ICT and postulate the importance of a common sense of purpose, interactions and relationships, and shared frameworks, ideas, tools, information, styles, language, stories, and documents. The authors, therefore, call for “more user-centered design of ICT systems, based on the cultural context of caseworker preferences” (Smith & Eaton, 2014, p. 140). They point out that ignoring these factors can constrain professional practices, create latent conditions for caseworker error, lead to problems for security and confidentiality, distance practitioners from children and families, and encourage troublesome, time-consuming practices. These problems are clearly evident in the early failures of technology in child welfare.

### ***Efficacy of the system described***

The system described as follows has been developed by social workers themselves, has been successfully implemented over 15 years, and has been evaluated for usability by welfare workers, its impact on the social work intervention and workers’ time taken to use the system.

The system has been shown to be used reliably by caseworkers. External auditors (New South Wales Office of the Children’s Guardian ([www.kidsguardian.nsw.gov.au](http://www.kidsguardian.nsw.gov.au))) have undertaken detailed examination of data held on children and young people to ensure that basic casework tasks have been undertaken and recorded. The method used was selection of random and assessment of the amount of information entered by caseworkers. The electronic files, which achieved over 80% of the information required, were 100% compliant on content and structure, 91% contained extensive information on health and behavior, 89% had adequate educational information (including school reports and marks), 95% included the plan for the child, however, evidence of parental participation in care plans was only in 72% of files. There was 70% compliance on recording children’s immunization.

Service user experience of the electronic case management interventions has also been positively evaluated. A study (Tregeagle, 2010b) was undertaken using qualitative methods based on “text-oriented discourse analysis” (Fairclough, 1992). This study was undertaken with Western Sydney University and ethics approval was approved by their Human Ethics Research Committee. Interviews were conducted with 32 children, young people, and parents who used the case-managed intervention in New South Wales and

the Australian Capital Territory. Participants had between 2 and 8 years' experience of using the case management system and all had completed their involvement with the agency. The semistructured interviews explored the everyday experience of social work intervention: what was seen to be of help, involvement in decision making, accountability of workers, the use of written forms and communications with workers. The vast majority of service users described positive experiences of the case managed intervention and told of having had a good working relationship with their social workers. The goals of the electronic case management system were accepted; most social workers were seen to be reliable and negotiations over the goals and processes of individual cases was possible. However, service users identified areas in which the interventions could be improved including the need for changes in language in the questions posed to them. Some service users valued the use of the written information printed out for them and a number spoke of being surprised by the importance of documentation and the ability to recheck what the agency understood about their situation. Some data was useful for reflecting back on assessment and increased self-reflection.

The third piece of evaluation of the system looked at the impact of using an electronic system on workers' time (O'Neill, Tregeagle, Forbes, Cox, & Humphreys, 2011). During a 9-month period over 2008–2009, caseworkers kept detailed diaries recording how much time and what type of activity was required to support the placements of 27 children and young people. The study by the University of Melbourne and Monash University showed that the total time spent on administration, including data entry, was only 16% of workers' time (O'Neill et al., 2010) and this is in contrast to reports that up to 80% of workers time is spent in front of a computer (Gillingham, 2014).

These three pieces of research show a system which is effectively and efficiently completed by workers and accepted by service users. However, the most important evidence about the computerized system has been its longevity of use within the agency and its active integration into agency function. In addition, other agencies have bought the system and use it actively and a number of research projects have drawn on the data (Fernandez, 2009; Tregeagle & Hamill, 2011).

### **Methodology: Practice-led ICT development**

It was people from within the social environment—closest to the culture and with *first-hand* understanding of the work practices and goals—who were responsible for the development of the technology described as follows. Attitude toward the “usefulness of the technology” was critical, particularly in social workers' desire to improve their own services and the wider child welfare system.



### ***Social work reform and initial interest in ICT***

The impetus for interest in ICT came from professional concern with outcomes for children using welfare services. The technology underpinning the social work technique was adopted first and computers were subsequently introduced as a separate process.

The agency responded to increasing criticism of child welfare services evident in the 1990s by adopting a standardized guided practice system imported from the United Kingdom. Social workers—from executives, to program managers and practitioners—saw significant problems in the organization of welfare services in Australia and hoped that locally adapted, standardized and evidence-based guided practice could lead to higher and more uniform professional standards of work and ultimately better outcomes for children and families. Such standardized approaches were then increasingly common in social work and the wider community in a phenomenon described as “technologization” (Fairclough, 1992), whereby: “... trans-contextual techniques, which are seen as resources or toolkits that can be used to pursue a wide range of strategies in many diverse contexts ... [are] increasingly ... handled in specific institutional locations by designated social agents (p. 215).”

The standardized guided practice system that the agency adopted was known as Looking After Children (LAC), which had been developed in the United Kingdom but seemed to be pertinent to the local fragmented welfare system (Clare, 2003, p. 21). Those who promoted its use saw LAC as facilitating the integration of research and practice and enhancing case recording, supervision, and review of decision making.

These standardized technologies opened the potential for computerization and ease of collation of data. Indeed, workers pushed for computerization of the system. By the late 1990s, computers were on practitioner’s desk, computer skills were well developed and workers themselves wanted to take advantage of the efficiencies of computer use. In 2000, the guided practice system was computerized to replace paper-based forms and became known as the LAC Electronic System.

### ***Changes to organizational structure to articulate requirements***

Social workers needed considerable time within appropriate organizational structures to articulate what was required of both the standardized form of social work and its application to computers. A practice-development center (PDC) was established in the agency and it took carriage of staff training, integrating the system into the professional and administrative life of the agency, and improving the usability of the guided practice system. Social workers ran the PDC in partnership with ICT developers and technical support.

A number of organizational strategies were introduced to support the PDC. At each office site, a “champion” was appointed to provide feedback on the use of guided practice and perceived problems with its computerization. These frontline practitioners met regularly with PDC staff to plan alterations to the program and to provide advice on barriers to implementation. In addition, a technical hotline to the PDC was established for practitioners. Importantly, the PDC senior manager met monthly with the agency’s senior management team to get immediate feedback on usefulness of the program in each work site.

The PDC worked actively to promote the system and maintain a strong relationship with a growing number of welfare agency customers outside the agency. There was regular follow-up to assess satisfaction with program changes and a formal system was also established to include groups external to the agency, such as community sector representatives, and representatives of children and young people through the CREATE Foundation. These two processes kept the PDC aware of changes occurring in the external environment.

### ***Social work leadership***

An important feature of the PDC was that social workers led development. Traditional approaches to IT development have been dominated by Information Technology (IT) professionals, and caseworkers have not been able to represent their own interests:

[ICT development has been] driven by [information system] providers who lack essential knowledge about the demands of and priorities in the provision of social services ... [A]t the same time, users and purchasers of [information systems] have struggled to define their needs when commissioning new [systems]. (Gillingham, 2013, p. 433)

Overall, the strength of the PDC model was the collaboration of the two professional groups. This mirrors others’ experience:

Although you might come up with what you consider to be a comprehensive list of ... requirements, there may be a range of requirements that are implicitly understood or assumed that you may not realize you need explicitly specify (Knight & Hunter, 2013, p. 10).

### ***Techniques to monitor user requirements and changes in expectations of technology***

Although the PDC development staff were from social work backgrounds, specific techniques were needed to better understand users’ work practices and computer usage. The PDC was particularly interested in what annoyed workers, and all alterations to address these issues were tested in focus groups.

Specific focus groups were run for different types of practitioners and managers in order to examine every aspect of users' experience and the changes that were introduced. In Smith and Eaton's terms, the focus groups monitored and worked with "communities of practice," including "the professional context of the work"—the agency's existing work activities, information sharing patterns, and social dynamics (Smith & Eaton, 2014, p. 142).

Social workers' feedback was not, however, the only factor taken into account during development. The original paper-based form of LAC had been developed based on academic research, and this knowledge about children and families had a strong ongoing role. Senior social workers insisted that the standard enhancing elements of the system be maintained, despite those elements not being popular with users. An example is that all significant decisions continued to be signed off by children and their family; however, signatures on care plans were often criticized by workers. Ultimately, this part of the guided practice system was maintained because of understandings that participation is often threatening to professionals (Ife, 1997). This approach to ICT development is a far cry from the coproduction models of ICT currently in favor, which seek to meet the immediate users' demands, as it includes strong elements of an evidence-based approach.

### ***Technical support for social workers***

As noted previously, there were two areas of support offered to users: support when using guided practice and computer support to ensure that frustration did not develop because of problems with hardware and Internet connections. IT support has also been important to ensure that the most recent technical advances were tested and, if they proved useful, were quickly made available to workers.

### ***Central importance of training focused on professional goals for new users***

The PDC actively promoted its guided practice computerized system as a professional tool through training of new caseworkers and periodic retraining of existing users—that is new workers needed to be enculturated into the professional goals of the project. Training always began by identifying the poor life outcomes for children who grew up in care (Cashmore & Paxman, 1996). The importance of how an information system is perceived is affirmed in Hoybe-Mortensens' account (2013) of the implementation of the Integrated Children's System in Scandinavia. She observes that trained workers understood the theory underpinning the system and were much more open to using the system than untrained workers, who tended to see the tool as intrusive (Hoybye-Mortensen, 2015, p. 11).

### ***Communication between IT developers and social workers***

Communication between the internal IT developers, the practitioners, and trainers was critical to the development interdisciplinary learning which underpinned the program. The process for development was based on the Agile project management system, a method which is characterized by division of tasks into short phases of work and frequent reassessment and adaption of plans. It is used widely by IT developers but needed to be learned by the social workers. Planning in the mixed team required that a hierarchy of priorities be established by the social worker manager to allow a smooth workflow for both teams, but these priorities were constantly negotiated. Ongoing development also required that the PDC respond to changes in computerization. The PDC team actively monitored how child welfare workers used the emerging technology, and incorporated these practices whenever possible.

### ***Emerging interest in participatory strategies through ICT***

Participation—a factor that was particularly lost through computerisation of LAC—was an important social work principle and initially caused tension among users. As emerging mobile technologies became more common, this problem became less of an issue. The original paper-based guided practice system had a number of important features that encouraged “the voice” of service users. These included requirements for signing off decisions, children and parents being invited to meetings, and having barriers to engagement identified and rectified. The system also included small consultation booklets to be completed by carers, children, and birth parents. However, these techniques were made more difficult when computers were first introduced. The PDC has now re-engaged with participation through ICT and has taken up a small contract to explore participatory strategies using tablets, smartphones and laptops, and gamification strategies. The development process involved extensive consultation with workers and a trial with children (including Aboriginal children) in long-term care.

### **Discussion: Critical factors in ICT implementation in social work practice**

The development and implementation of the ICT in social work settings has shown the importance of the social shaping of technology and recent theory about implementation which builds on the importance of professional and local workplace culture. However, our experience also shows other factors are important but not strongly acknowledged in commentary: such as the importance of organizational supports and a shared language between ICT professionals and those interpreting practitioners’ needs. It is important to see that as the social has shaped the technology, ongoing changes in technology have shaped the workplace.

The most critical factor in the agency's experience of implementing ICT has been the importance of the social worker's view of the usefulness of the system to children and their families (Zhang & Gutierrez, 2007). This is a point closely aligned to Smith and Eaton's (2014) stress on the congruence of the ICT applications with professional objectives. Importantly, initial implementation of a guided practice system was grounded in the social work goals to reform practice. Implementation of an electronic database would not, however, have been possible without meeting the criterion of "usefulness to the individual child welfare worker" in their day-to-day work (Zhang & Gutierrez, 2007). The agency's experience was that, to achieve workers' active use of the computerized system, even the smallest features of the program needed to be subject to scrutiny and, if found wanting, rectified as soon as possible. Good technical support for both the guided practice and computers was essential to promote usefulness—or at least avoid user frustration with computers. It was also essential that the data produced was important to individual workers and their immediate teams. The PDC developed reports to help individual workers manage their own work, to help teams coordinate their workloads, and to give team leaders "push of the button" ways to meet accountability requirements to government.

Other factors identified as important for implementation by Zhang and Gutierrez were necessary for the success of the guided practice system. Organizational usefulness was an important factor and, over time, has cemented the use of the guided practice system into agency functioning. As the ICT development was financed directly from the welfare budget, the chief executive and senior management team had an overwhelming interest in ensuring that the technology "paid for itself" in terms of time savings and output. Management support became even stronger after external accreditation was introduced to New South Wales, and it was clear to each worker that their electronic files might be viewed in random checking, and that public acceptance of the agency may be monitored through their work.

Zhang and Gutierrez also identify the importance of what they term "subjective norms" to the success of ICT in social work; by this they mean the influence of top managers, supervisors, and peers (these influences were very relevant to the agency's experience). The multilevel commitment to implementation was particularly important since senior managers needed to ensure that staff had time to participate in reviews of each iteration of the software, and that they had training and access to the most up-to-date technology.

Practitioners' own perception of their resources and skills to work with computers was also an important issue; this is what Zhang and Gutierrez termed "perceived behavioral control." The introduction of computerization of the guided practice system occurred at a fortunate time in the late 1990s when child welfare practitioners largely had both the resources and belief in their own competencies to use the technology. What is perhaps not so evident in the implementation literature, but a factor that proved important for the

agency, was the need for close communication and a close working relationship between IT and welfare practitioners. Skills and understanding have developed over many years, and the practitioners in both fields have become more sophisticated in understanding how to contribute to system development and improvement.

Recent trends for user-led computer programs bring an important new approach to developing ICT in social work. However, as in the case with the app development tender described previously, there are problems when users are only seen as “workers.” To develop computerized-guided practice systems that reform practice and are, therefore, most easily implemented, the perspectives of children and families need to be included. Academic understandings are an important way of attempting to make sure that those perspectives are represented, alongside testing with these ultimate end users.

### **Recommendations for future research**

The development of the computerized case management system described previously has been the result of intensive consultation to understand the “social factors” involved in development of a program that is actively used by social workers. Research has shown us that the program has been effectively taken up by workers and accepted by service users in a particular agency. However, future research needs to explore how sensitive this program is to differences in social settings: such as individual agency, service systems, legal jurisdictions, and social work environments (McDonald, Harris, & Wintersteen, 2003). This article has shown the importance of enculturating new users to the professional objective of the program; but what will happen if these objectives change over time and the impetus is lost? Will the social worker developers themselves be affected by objectives of IT professionals, perhaps losing contact with practitioner perspectives and finding it harder to resist market pressures? Will changes in computer technology make it difficult to adjust to social work requirements and timeframes?

### **Conclusion**

The development of ICT programs for child welfare is a long-term and intensive process requiring the use of extensive resources to understand the social setting for both the underlying social work knowledge and computerization. Extensive resources and skills have been needed to marry both technologies with the service system culture. Social work practitioners’ control of development and implementation of the program described in this article has been important in producing a usable program that has been independently evaluated positively. Future development must balance market-driven concerns including the interests of ICT professionals, social workers’ interests,

as well as the important perspectives of children and families (Ife, 1997) and sensitivity to local service settings.

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