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On: 18 February 2015, At: 04:36

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Educational Action Research

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/react20>

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Published online: 10 Feb 2015.



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To cite this article: Josephine Bleach (2015) Improving numeracy outcomes for children through community action research, Educational Action Research, 23:1, 22-35, DOI: [10.1080/09650792.2014.994016](https://doi.org/10.1080/09650792.2014.994016)

To link to this article: <http://dx.doi.org/10.1080/09650792.2014.994016>

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Improving numeracy outcomes for children through community action research

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(Received 3 July 2014; accepted 18 November 2014)

Virtue, according to Aristotle, is doing the right things at the right time with the right people for the right end and in the right way. This concept is central to the work of the Early Learning Initiative, an Irish community-based educational initiative. This paper describes how a community of parents, early childhood care and education practitioners and a third-level institution used action research to develop a three-year numeracy programme for children aged zero to six years. The Early Numeracy Project was one of 11 national projects that aimed to influence early years practice, provision and policy in Ireland. Remaining true to our local values and virtuous practice while implementing a national project was challenging, particularly when robust evidence of the impact of the programme on the children and parents in our community was required at national level. Approximately 860 children (zero to six years old) and their families took part in the Early Numeracy Programme each year, with national and local evaluations indicating that the outcomes for children in the programme had improved. The programme is an example of how a local community can use action research and virtuous practices to implement a national programme and improve outcomes for children.

Keywords: action research; community; early years; numeracy; implementation; virtuous

Introduction

Virtue, according to Aristotle, is doing the right things at the right time with the right people for the right end and in the right way. This concept is key to the work of the Early Learning Initiative (ELI) at the National College of Ireland, a community-based educational initiative in the Dublin Docklands. As Director of the ELI, I work with colleagues to ensure that our practice is virtuous. For us, virtuous practice is working in partnership with parents, early childhood care and education (ECCE) services, schools and health services along with other community, statutory and corporate organisations to improve educational outcomes for children. Treating people with dignity, respect and courtesy is central to our practice. All of ELI's programmes are developed using a community action research approach (Bleach 2013a, 2013b; Senge and Scharmer 2001). This has evolved over the years from a simplistic 'plan, do, review' model (Lewin 1946) to a more complex annual cycle of communication, planning, implementation and evaluation through which we, as a community of learners, investigate and evaluate our own practice and programmes (McNiff and

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Whitehead 2006). This provides us with the ongoing data required for continuous programme improvement, while giving a genuine voice to the local community through a methodology that directly involved them as co-constructors of ELI's programmes (Bleach 2013b).

In 2010, we were successful in our application to develop an early numeracy programme under the Irish National Early Years Access Initiative (NEYAI). This paper describes how ELI, in partnership with the local community, developed and implemented the programme. A key challenge for us was remaining true to our existing values and the principles and practice of action research (McNiff 2010; Townsend 2013), while implementing a NEYAI programme. The NEYAI values, which ELI were expected to follow, are outlined in the next section. The subsequent section outlines ELI's values and how these values aligned with those of the NEYAI programme. The community action research approach used to design, implement and evaluate the programme at local level is then described, while the following section explains the impact of the programme on children, ECCE practitioners and parents in the Docklands. The penultimate section contains my reflections, as Director of the ELI, on our involvement with NEYAI and our use of community action research as a virtuous practice to improve numeracy outcomes for children. The final section outlines the next steps for ELI and the Dublin Docklands Early Numeracy Programme.

National Early Years Access Initiative – key national values

NEYAI, which ran from 2010 to 2014, was a collaborative partnership between the Atlantic Philanthropies, the Mount Street Club Trustees, the Department for Children and Youth Affairs, the Department of Education and Skills, and Pobal (2010, 2014a). Pobal is a not-for-profit company that manages programmes on behalf of the Irish Government and the European Union (Pobal 2014b). Over this period, NEYAI funded 11 local projects, including our numeracy programme. The aim was that the models of best practice developed through these NEYAI projects would influence early years practice, provision and policy in Ireland.

Clear guidelines and values were outlined at the onset of the NEYAI application process. Improving outcomes for socio-economically disadvantaged children (aged zero to six years), their families and communities was a fundamental element for all of the projects (Pobal 2010). There was also a focus on improving the quality of the ECCE services which these children were attending. All NEYAI projects were expected to implement *Siolta*, the National Quality Framework for Early Childhood Education (CECDE 2006), and *Aistear*, the Early Childhood Curriculum Framework (NCCA 2009). There was an emphasis on providing a 'continuum of services for the "whole child" linking and integrating child, family, local services and the community' (Pobal 2010, 4).

NEYAI established structures at national level to monitor and evaluate the local projects. The NEYAI Steering Group managed the overall strategic direction of the national programme, while Pobal was the contractual entity for the governance, management and administration of NEYAI (Pobal 2014a). It liaised with local projects on, among other issues, budgets, implementation plans, progress reports, evaluation and dissemination of learning. In addition, a team of evaluators, supported by an Evaluation and Learning Expert Advisory Group, was appointed to undertake a National Evaluation of all of the local projects.

At the local level, we, as a NEYAI project, were contractually and morally obliged to comply with these NEYAI terms and conditions. We also had to establish a consortium that was committed to working together ‘in a true spirit of partnership and collaboration’ (Pobal 2010, 3) and report back at regular intervals to the NEYAI Steering Group and Pobal.

The Dublin Docklands Early Numeracy Programme – key local values

Since 2005, ELI had been working successfully in the Dublin Docklands to address educational disadvantage (Bleach 2013a). Operating as a partnership, we were committed to involving the whole community in actively supporting and planning for the best possible education for children both at home and at school (Bleach 2010). Action research was central to our way of working together and was used extensively to improve our educational practices and to generate theories about learning and practice (McNiff and Whitehead 2006). As a result, the process of learning and review described in the NEYAI application criteria (Pobal 2010) was an important element of our existing values and practice. The challenge for us, initially with NEYAI, was finding the right thing to do with the right people in a way that would add value to our existing practice and programmes.

Internal ELI evaluations had, over the previous three years, highlighted the low levels of numeracy in the Docklands area as well as the lack of support for parents in mathematics (ELI 2010). In addition, a series of national and international reports (DES Inspectorate 2005; Eivers et al. 2010; Shiel et al. 2007; Surgenor et al. 2006) emphasised how young people in Ireland were poorly prepared for future mathematical needs as students and citizens. An international literature review revealed enormous differences in the mathematical knowledge of children when they begin school (Every Child a Chance Trust 2009; Northwestern University 2007; US Math Recovery Council 2005), with opportunities for pre-schoolers to learn mathematics often very inadequate (National Academy of Sciences 2009). Unfortunately, those that are among the least advanced of their class remain so throughout their schooling and often give up on mathematics. Even for those who remain in education, the lack of proficiency in mathematics-based subjects can be the trigger for non-completion at third level (HEA 2010).

Having considered all of the research on the impact of the lack of proficiency in mathematics on children’s future education prospects, we decided to focus on improving the early numeracy skills of children in the Docklands through the provision of an integrated programme of activities, training and support for local children, parents and professionals (ELI 2010). All children (zero to six years old) who attended the local ECCE services, including the infant classes in the primary schools, and their families could take part in the programme. These ECCE settings and schools were largely attended by those living in local authority housing estates, which were in the most disadvantaged category (Haase 2008). All of the schools had disadvantaged status (DES 2005).

Ensuring continuity and progression in mathematical learning for children moving from home to ECCE settings to the local schools through the implementation of *Aistear* and *Síolta* was already a key objective for us (ELI 2010). *Síolta*, which is the Irish word for ‘seeds’, consists of a series of themed questions that enable ECCE educators to reflect on their existing practice and then work on areas that need improvement. It is process rather than product focused, with an emphasis on the

ongoing journey of working towards quality practice (CECDE 2006). *Aistear*, which means ‘journey’ in Irish, is Ireland’s curriculum framework for children from birth to six years. As well as describing early years learning and development, it outlines ideas and suggestions about how these might be nurtured (NCCA 2009). Both *Síolta* and *Aistear* have a clear and specific purpose in promoting and enhancing quality provision on a national level and, as suggested by the NCCA (2009), complement and support each other.

For our programme, we took the numeracy learning outcomes and learning activities from *Aistear*, while we used *Síolta* to reflect on and improve the quality of our practice in numeracy (ELI 2010). Community action research was chosen as our research methodology as it was closely related to the *Síolta* Standard 8: Planning and Evaluation (CECDE 2006) as well as the school development planning process, which aims to improve teaching and learning through the successful management of innovation and change (DES 1999). In this way, we aligned national and local aims and values throughout the programme. The following sections describe the process through which the programme was developed, the impact it had on children, parents and practitioners and the learning from the programme.

Community action research – local design, implementation and evaluation process

According to Senge and Scharmer (2001, 240), community action research begins by creating a learning community that works together to ‘nurture and sustain a knowledge-creating system’, based on valuing each other equally, together with the following three interacting domains of activity:

- Research: a discipline approach to discovery and understanding, with a commitment to share what is learned.
- Capacity-building: enhancing people’s awareness and capabilities, individually and collectively, to produce results they truly care about.
- Practice: people working together to achieve practical outcomes.

This section will describe how we created a learning community, as described here by Senge and Scharmer (2001), to develop our programme.

Creating a learning community

The NEYAI application process, from the expression of interest stage to signing the contract with Pobal, took from September 2010 to May 2011. A consortium of 16 local ECCE services and primary schools, led by ELI, was involved in the application process. Each member of the consortium signed a memorandum of understanding committing to use action research to plan and implement a programme, which would support children’s learning through a range of developmentally appropriate and challenging mathematical experiences chosen from *Aistear* (ELI 2010).

The anticipated outcomes were as follows:

- The numeracy outcomes for children, aged zero to six years, would be improved.

- ECCE staff and parents would learn how to support children's numeracy development.
- There would be greater community awareness and understanding of numeracy and how significant adults in children's lives can create enriching and diverse numeracy learning opportunities for children.

As the lead organisation, the National College of Ireland, through ELI, took full responsibility for the financial, management, contractual, reporting and governance requirements of NEYAI, including leading the action research process (ELI 2010). A numeracy team was created within the existing ELI team, consisting of myself as ELI Director, our Early Years and *Siolta* Coordinators along with an administrator. We worked together to facilitate the action research process and ensure that voices of children, parents and professionals were included at all stages of the process. We also liaised at national level with Pobal, the NEYAI Steering Group and the National Evaluation team.

Representatives of each member of the consortium at management level met twice each year in June and September to discuss and agree the overall direction of the programme and the yearly plans. In addition, a cross-organisational (Senge and Scharmer 2001) working group was established. It consisted of front-line delivery staff from each organisation in the consortium. The group met three to five times a year to develop action plans for the early numeracy curriculum priority weeks (numeracy week) and other related activities. Each member of the working group, with the support of the ELI numeracy team, was responsible for communicating and leading the process/activities within their own organisation.

Research

Community action research was central to our termly cycle of planning, implementing and reviewing (Figure 1). The cycle began with a working group meeting at the beginning of each term. At these meetings, the action plans from the previous term were reviewed and new ones developed. The ELI numeracy team then used these plans to develop the materials for the numeracy week and training sessions for ECCE practitioners and parents. Encouraging participation at these meetings and allowing all present to 'amicably disagree' and 'comfortably inhabit a position of not knowing everything' (Frankham and Howes 2006, 626) were important. This helped everyone to engage in the discussion and take ownership of the agreed action plans.

Capacity-building

Three training sessions a year were provided by the ELI numeracy team to ECCE practitioners in implementing *Siolta* (CECDE 2006) and *Aistear* (NCCA 2009). *Siolta* was used as a prompt for reflective thinking on the quality of the service provided to children, while *Aistear* was presented as the framework to guide teaching and learning. At the end of each session, action plans were developed by the participants to improve the quality of teaching and learning in their settings. The ELI numeracy team visited each of the ECCE settings between training sessions. These visits focused on reviewing and supporting the implementation of the action plans devised at the training sessions. There were also Parents' Workshops each term.



Figure 1. Action research cycle.

The aim was to increase parents' awareness and understanding of the things they could do at home to enhance their children's numeracy skills.

Practice

The numeracy week took place after the workshops. During this week, a range of mathematical activities was implemented at home, in the ECCE settings and throughout the community. Topics covered over the three years included shape, space, measures, pattern, sequencing and number. An ELI numeracy team member visited each service before and after numeracy week. The action plans for the week and the related numeracy activities and resources were discussed with the working group representative and her colleagues. Parents' perspectives on and involvement with the numeracy activities were gathered through informal 'Meet and Greet' sessions.

Evaluation

As a local project, we had to produce robust evidence that we were implementing the programme and achieving our outcomes to the NEYAI funders, Steering Group and Pobal. This required us to have explicit criteria against which the authenticity of our data and evidence could be checked within the broader exercise of testing the validity of our claims (McNiff 2010). Using Veerman and van Yperen's (2007, 217) quality standards as reference points, the standard of 95% or more participants finding the programme useful was chosen as the indicator of programme satisfaction, while the standard that 90% of the goals of a programme are attained was used to

determine impact. Gathered systematically, over several action research cycles, these data were used to provide indicative evidence of effectiveness and causality. This also enabled us to be confident that we were engaging in virtuous practice; that is, doing the right things with the right people for the right end and in the right way.

Chelmsky and Shadish's (1997) three perspectives on evaluation – evaluation for development, evaluation for knowledge-building and evaluation for accountability – were used at local and national levels to monitor the programme. Findings were discussed at each working group meeting and amendments to the programme for the following term were agreed. At the end of each year, the consortium, the working group and the ELI numeracy team did an overall review of the programme and used the data to update the programme plan for the following year. The findings were also included in the NEYAI biannual progress reports and ELI's Annual Report.

Multiple methods were used to gather evaluation data on the programme. This allowed for triangulation, which created confidence in the accuracy of the findings. Quantitative and qualitative data were collected through evaluation forms following each training session and numeracy week. This was supplemented by the qualitative data collected during on-site visits and the quantitative data from the child assessments. Three different forms of assessments were used to measure children's numeracy outcomes. The standardised test results in mathematics for children aged seven years were collected each year from the local primary schools who participated in the programme. In 2012, along with the NEYAI National Evaluation (McKeown, Haase, and Pratschke 2014), a local evaluation was carried out using an innovative numeracy assessment tool (Lalor 2013). Baseline and follow-up assessments were completed on a group of children aged three to four years. The results were compared with children of the same age taking part in other NEYAI projects along with a more socio-economically advantaged sample.

Programme impact

Approximately 860 children (zero to six years old) and their families took part in the programme each year. The aim was to improve the numeracy outcomes of the children (aged zero to six years) by improving the skills of parents and ECCE practitioners in supporting children's numeracy. This section examines the findings from both external and internal evaluations in relation to children's numeracy outcomes along with the impact of the programme on ECCE practitioners and parents. The qualitative data collected were used to describe the impact of the programme and the action research process on the participants and their organisations (Blaxter, Hughes, and Tighe 2001). This enabled us to check regularly that we doing the right things at the right time with the right people for the right end and in the right way. Quantitative data helped in demonstrating generalisability and allowed us to measure service delivery and outcomes in numeric terms. A cumulative approach to knowledge generation (Blamey and Mackenzie 2007) was taken, where learning accumulated slowly within and across action research cycles rather than delivering 'big bang' answers to questions of programme effectiveness.

Impact on children

Children's numeracy outcomes improved over the course of the programme. The local numeracy assessments (Lalor 2013) indicated that the children's numeracy

concepts and skills had improved over the year and they were performing on a par with those in a more economically advantaged area. The results from the National Evaluation were similar, with children in the area doing very well, particularly in language and cognition, compared with their peers in other projects in the evaluation (McKeown, Haase, and Pratschke 2014). Standardised test results from the local primary schools showed that seven-year-old children in these schools were scoring to national norms in mathematics. Feedback from participants was positive, with one ECCE practitioner saying ‘The children really grasped the concept, reinforced at home and in school. Maths was great fun.’

Children experienced a more positive numeracy learning environment, both at home and in the ECCE settings. In total, 96% ($n = 340$ out of 353) of ECCE practitioners who filled out evaluation forms agreed that the numeracy week provided valuable learning opportunities for the children. As can be seen from the following comments, children were encouraged to be active participants in the programme:

The children loved the activity week. They were highly involved in all the games/activities and they created their own game of find the shape in the room and match it to the wall chart.

I feel it gave children the vocabulary they can use to describe objects, I also feel that when the children have play time now they are exploring objects more and coming to tell me if they are long/short, narrow/wide, heavy/light. (Numeracy week, evaluation forms)

Impact on early childhood care and education practitioners

ECCE practitioners became more aware of and more skilled in supporting children’s numeracy outcomes. In total, 99% ($n = 402$ out of 403) of ECCE practitioners who completed evaluation forms agreed that the training sessions supported them to improve the quality of their practice. The best things about the programme were, according to staff, the information on how to improve the children’s numeracy skills as well as the opportunities to reflect on their existing practice and planning structures in collaboration with their co-workers and colleagues from other services. They also mentioned how their teaching methodologies had changed and how communication around numeracy with colleagues, parents and other services had improved as a result of the programme:

I can use the information and knowledge from this workshop to continue and enhance the work I’m already doing with the children in the area of early numeracy. The continued support we receive keeps us on our toes and makes sure we are continuing to do it.

Yes, I know the language to use with children to enable them to learn better. I can explain numeracy better to parents as I now have a far better understanding of what it actually is. I find modelling what I learnt helps my colleagues to understand better. I also shared learning stories with both parents and colleagues and this was the easiest way to share information. (ECCE Practitioner Training, evaluation forms)

Interest in and attendance at the training increased over the three-year period as managers saw the benefit of a centre-wide approach to quality improvement. It made, they felt, the process of implementing change more effective, as well as improving staff morale:

The training made staff reflect and think about their practice. It gave them the proper language to use and it also gave them confidence as they slowly realised the work that they were doing and the training gave them the tools to improve on this. Staff really enjoyed the training and got a lot out of it. (End-of-year evaluation form for ECCE managers)

The numeracy week also helped to improve the teaching of numeracy. In total, 76% ($n = 179$ out of 236) of ECCE participants who filled in evaluation forms at the end of the week agreed that it provided valuable learning opportunities for them, with the majority finding the numeracy activities suggested and the resources provided very useful:

The variety of activities suggested by the wall chart supplied plus activity games supplied. Also, staff interest was excellent, we formed a written plan for the week and all activities were carried out and all the children's work was documented on a wall display, for parents and children to see! Teamwork was fantastic! The songs were very well received by the children and they really helped the children's learning of shapes. (Numeracy week, evaluation forms)

However, there were variable levels of engagement across the ECCE settings involved in the programme. Some practitioners found it difficult to adjust the activities and resources to suit the needs of the children they worked with. In some cases, cuts in funding and staffing impacted on attendance at the working group meetings and training sessions as well as programme implementation. It was also challenging to fit the full programme into the academic year, with a number of centres feeling 'overloaded'.

Impact on parents

Parental involvement varied over the course of the programme. Opinion was mixed as to the impact of the programme on parents, with 71% ($n = 164$ out of 230) of ECCE practitioners who returned evaluation forms agreeing that the numeracy week provided valuable learning opportunities for the parents. While the majority of comments indicated that parents were more involved in their children's learning as a result of the programme, a minority mentioned that parents could be more involved:

Most parents were enthusiastic about it, but some were hard to get on board as they were rushing to work.

The parents reported the children recognised shapes around the home & were excited about their homework sheets & so proud when they received their stars. Only two toddlers out of nine did not bring back their work.

We got positive feedback. Parents told me that the children were scanning everything on their way home looking for circles, squares, triangles and rectangles. One parent said 'I didn't realise we could look at shapes in everyday things walking home'. (Numeracy week, evaluation forms)

While the parents' workshops on numeracy were poorly attended at times, all of the parents who attended (100%, $n = 168$) were positive about the programme and agreed that they understood numeracy more and would use the information with their children:

It made me understand what numeracy was all about, as I didn't understand a lot about it till today. Very interesting.

It helped me to understand simple things I can do at home with my child to help improve his numeracy skills. Helped me realise things I was not doing and wasn't aware I should be doing with my child to work on those skills. (Parent workshop, evaluation forms)

In 2013/14, following a review of the programme, parents were surveyed directly by the ELI numeracy team as they dropped or collected their children at/from the ECCE services. Of the parents surveyed, 91% ($n = 140$ out of 154) were aware of the numeracy activities being done with the children over the previous week. The majority (88%, $n = 136$) had used the numeracy activity card their child had brought home, having found it easy to understand and use. A total of 97% ($n = 149$) would recommend the numeracy week activities to a friend.

Some services were more pro-active than others in engaging parents, and invited parents into either the classrooms and/or numeracy events. Staff from these settings were more likely to report positively on parental involvement:

We had a priority event which consisted of stations in the hall and the children got to play a large Connect 4 game, snakes and ladders, play shop, skittles and make numbers from play dough. They really enjoyed this event ... Parents came to help with the priority event and enjoyed this as a chance to see the children learning through fun activities. Those who participated in the Friday activities gained from seeing the types of activities the children learn from and enjoyed being directly involved. They also got to play games/sing songs with their child that they might not have done before. (Numeracy week, evaluation form)

This was reflected in the 'Meet and Greet' Parents' Surveys. When asked whether the settings had had any numeracy activities for parents the previous week, only 36% ($n = 59$) said yes. This flagged for us issues of power and control (Bleach 2010; Townsend 2013) in the relationship between parents and practitioners, which we brought to the next working group meeting for discussion.

Overall, the programme brought an enthusiasm and excitement about learning to the community. It increased awareness of the importance of early mathematical learning among ECCE practitioners and parents, with everyone working more collaboratively to improve the numeracy outcomes for children.

Reflection – implementing a national programme at local level

A key goal of NEYAI (Pobal 2010) was to improve outcomes for children aged zero to six years. In this section, I reflect on how we, as a local community in the Dublin Docklands, supported by Pobal at national level, achieved this goal. I will also explain how we managed to remain loyal to our existing local values and the principles and practices of action research (McNiff 2010; Townsend 2013), while meeting our commitments to NEYAI.

Having our application accepted by NEYAI was a key motivator for all of us. Our existing expertise and good practice were acknowledged at national level and our programme would be used to influence early years practice, provision and policy in Ireland. While we were delighted by the recognition, we were also a bit overwhelmed by the task facing us and our commitments under NEYAI. However, the alignment of the NEYAI application criteria to our existing values and action research processes was reassuring, as was our prior experience in using action research to improve educational outcomes for children in the Docklands.

The first working group meeting and action research cycle was the most difficult as we came to grips with the tasks and processes involved in balancing local values, learning needs and practices with our obligations under NEYAI. After the first term, an agreed action research cycle (Figure 1) for the programme was established and we began to focus more on the numeracy content of the programme and implementation in each service. However, the context and parameters for the programme, at national and local levels, were revisited at each consortium and working group meeting. We found that this helped our practice to remain virtuous, thereby ensuring that we continued to do the right things with the right people.

Effective communication structures were crucial to ensure our virtuous practice and successful implementation. Regular working group meetings and ongoing communication from ELI through visits, letters, emails, telephone calls, text messages and Facebook kept everyone informed and involved in the programme. They also enabled the expertise, practice and experience of individual participants to influence the dialogue, process and content of the programme. Imbued with a genuine sense of partnership, the programme fostered a dialogue of equals throughout the community, where everyone appreciated that while each of us had a different role and level of expertise, we were all equal in personal and professional value (McNiff 2010). Harnessing the creativity, enthusiasm and commitment of the community in this way made balancing local and national values easier and programme implementation more effective.

The leadership provided by the members of the working group within their own ECCE settings and in the community acted as a 'bridge' between the different services and interest groups (Elliott 2010). Supported by ELI and their managers, the working group nominees encouraged and supported their colleagues, children and parents to get involved in the programme. The more pro-active and engaged the working group nominee and their service were, the more the quality of the children's mathematical learning, parental involvement and teamwork within the setting improved.

However, involving parents in the programme was a continual challenge. We found it difficult to find the appropriate level of participation for parents, while at the same time respecting their other important duties and often overburdened schedules (Flicker 2008). While the time commitment asked of parents appeared small to us, it was much larger when the total number of requests received by parents from the participating services was taken into account. Introducing the 'Meet and Greet' with parents was a turning point. Meeting parents in this way helped us to understand their perspectives more and it also enabled parents to contribute to the debate and decision-making processes of the programme (Bleach 2010). Involving parents continues to be a work in progress as we attempt to discover the 'right' way to engage them in the programme.

Change does not happen in a vacuum, either at local or national level. Throughout the Early Numeracy Programme, both ELI and the participating ECCE services were working 'in an environment of rapid change – in terms of national policy and the infrastructure for the delivery of early intervention and prevention services, with both funding cuts to existing services and new funding initiatives' (Pobal 2014a, 3). This is not unusual when doing action research, which as McNiff (2010) stated is full of twists and turns. Working with real people within real social systems, you cannot expect people to constantly act as you wish and things always to go as planned (Bleach 2013a). As with all of ELI's programmes (Bleach 2013a), we found

that collectively reflecting on and discussing the reasons for the gaps between our action plans and their implementation helped us to improve the quality of our next action plan and its chances of being implemented. It also helped us to consider whether we were doing the right things with the right people in the right way and for the right end.

Balancing planning, implementation and evaluation requirements was challenging, with both the NEYAI National Evaluation and our local evaluations impacting on our resources and our ethos of treating people with dignity, respect and courtesy. We were aware that action research does not have the same status as independent external scientific evaluation and evidence-based programmes (Bamber et al. 2010) and that robust evidence of the impact of the programme on the children and parents in our community would be required at national level. As a result, we were anxious that the right things would be evaluated in the right way by the right people. Had it not been for the additional support provided by Pobal, the time we spent briefing researchers, acting as gatekeepers and accommodating the agendas and schedules of the research teams would have impacted on our action research process. While we found the NEYAI National Evaluation useful in endorsing our programme and highlighting future directions, action research proved to be a more powerful tool for supporting implementation. It was invaluable in providing the ongoing data and context for group reflection, discussion and virtuous decision-making in an evolving, rapidly changing environment of constant feedback and change (Patton 1994).

Where to next

According to Kemmis (2009), action research aims at changing three things: practices or ‘doings’, understanding of practice or ‘sayings’, and the conditions of practice or ‘relatings’. The Dublin Docklands Early Numeracy Programme improved the outcomes for children in the area and enhanced the skills of parents and ECCE practitioners in supporting children’s numeracy development. It created an excitement about early numeracy in the community and established concrete contexts for further deepening our common purpose and building our practical know-how (Senge and Scharmer 2001). The action research process gave direction, meaning and motivation to the participants, in particular the working group nominees. It ensured that the programme was implemented and was being continuously evaluated and improved to meet the ongoing learning needs of the community.

Being part of a national initiative was an important motivator. Working on an issue of national importance helped to create a sense of collective moral purpose (Fullan, Cuttress, and Kilcher 2005) that permeated and gave coherence to the often diverse activities of the programme (Senge 1990). However, balancing local values and practices with our obligations as a NEYAI project was difficult at times. The opportunities for collective reflection and dialogue throughout the action research process helped us to ensure that we were continually engaging in virtuous practice.

The NEYAI at national level ended in September 2014. Having been awarded funding under the Area Based Childhood Programme (DCYA 2014) to expand our programmes, we are at the beginning of another action research cycle in which we will incorporate our learning from the Numeracy Programme. As we come to terms with the different Area Based Childhood structures and guidelines at national level and our enlarged consortium at local level, the challenge of remaining true to our existing values and the principles and practice of action research (McNiff 2010;

Townsend 2013) continues. Already, issues of community and community engagement, power and control along with the ownership and construction of knowledge have arisen. Adhering to our virtuous practices and creating safe, yet challenging, opportunities for collective reflection, dialogue and action planning will be critical, if the ethos of genuine partnership and respect that was at the heart of the Dublin Docklands Early Numeracy Programme is to be maintained.

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