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Developing Independent Learning in children aged 3-5

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Abstract

This paper presents interim findings from a project exploring the development of independent learning in English Nursery and Reception classrooms. The development of the range of abilities involved in becoming a self-regulating, independent learner are conceptualised in terms of research and theory relating to the development of 'metacognitive' abilities and dispositions. In the first year the project has explored the work of 16 teachers/educators working with children in the 3-5 age range, using a range of methodologies including questionnaires, interviews and reflective dialogues (based on video recordings of particular classroom episodes), reflective journals and child assessment checklists.

The paper presents interim findings in relation to the nature of independent learning abilities which appear to develop in this age range and the impact of a range of pedagogical practices.

Introduction

This paper presents interim findings from the end of the first year of a 2 year project exploring the development of independent learning in English Nursery and Reception classrooms, which is now defined within the UK as the Foundation Stage. The project aims to:

- develop a model of the development of children's independent learning and design an audit/assessment tool for independent learning in this age range
- identify the kinds of experiences and interventions that seem to be most effective in encouraging children's independent learning abilities
- devise practical classroom activities and teaching strategies that have a demonstrable impact on the development of children's independence

While there is a clear interest and commitment in fostering independent learning from governmental agencies, education policy makers and practitioners, however, there is no clearly agreed understanding of what this might consist. Furthermore, transforming these good intentions and aspirations into everyday classroom practice within Early Years classrooms has proved problematic. In a previous study carried out by one of the present investigators evidence emerged indicating the declining opportunities for independent learning and thinking as children progress through the early years of schooling (Hendy & Whitebread, 2000).

Within the present project, the development of the range of abilities involved in becoming a self-regulating, independent learner are conceptualised in terms of research and theory relating to the development of 'metacognitive' abilities and dispositions.

'Metacognition' refers to a complex array of skills, understandings and dispositions which incorporate children's developing awareness of their own cognitive processing, their knowledge about thinking and learning, and of tasks and strategies, and their developing ability to devise and select appropriate strategies to manage effectively their thought processes in learning and problem solving. There is a considerable and longstanding literature supporting the crucial significance of metacognitive abilities for the development of effective thinking and learning (Flavell, 1979; Forrest-Pressley et al, 1985; Brown, 1987; Sugden, 1989; Schunk &

Zimmerman,1994; Zimmerman & Schunk, 2001). However, research in relation to pedagogy and metacognition is patchy and under-developed. Precisely what kinds of metacognitive abilities may be encouraged by which elements in a teaching program or approach are as yet very largely undelineated.

This paper presents interim findings in relation to:

- the nature of metacognitive and self-regulating abilities which appear to develop in the age range 3-5
- the impact of a range of pedagogical practices upon children's development of these abilities in this age range.

Methodology

In the first year the project has explored the work of 16 teachers/educators working with children in the 3-5 age range. The qualities of their current practice which encourage independent learning were observed, recorded and analysed. They were also involved in developing a range of innovative practices, which were similarly recorded. The project has used a range of methodologies including questionnaires, observations, interviews and reflective dialogues (based on video recordings of particular classroom episodes), reflective journals and child assessment checklists.

Child Assessment Checklists

These consisted of 35 statements drawn from the literature relating to previous studies of the development of children's self-regulation and metacognition (eg Bronson, 2000; Brooker, 1996; Featherstone & Bayley, 2001; Schunk & Zimmerman,1994; Winne & Perry, 2000). They were given to each practitioner, who was asked to select six children in their class (2 high independence, 2 intermediate and 2 low) and to assess their independent learning using the checklist. For each statement, the teacher had to assess whether this was true of the child always, usually, sometimes or never. At the start of the second and third terms in the school year these were revisited and new assessments made, in order to measure the development of the children's independent learning behaviour. From the 16 practitioners involved in Year 1 of the project, this resulted in data for 96 children recorded on three occasions i.e. a total of 288 assessments for each of the statements.

As will be reported later in the paper, analysis of this data has enabled the production of a 20 item checklist which highlights the key elements of independent learning in this age group. This new checklist, the Checklist of Independent Learning Development 3-5 (CHILD 3-5), will be used and continued to be developed in year two of the project. It contains five statements under each of the four areas of self-regulation identified by Bronson (2000): emotional, prosocial, cognitive & motivational.

Working Groups and Independent Learning Innovations

The Project team was divided into four working groups consisting of five members: - two nursery practitioners, two reception practitioners and a member of the Faculty of Education. The groups were chosen to reflect a mix of settings. These groups have been the focus for discussion about ideas concerning independent learning, current practice that encourages self-regulation and factors that constrain this aspect of children's development.

The groups have also chosen an activity or innovation that they can develop in their own settings that encourages some aspect of independent learning. Innovations were suggested by the research team based on previous research of pedagogical

practices which appeared to encourage various aspects of self-regulation in young children (Biemiller & Meichenbaum, 1992; Brooker, 1996; Critchley, 2002; Featherstone & Bayley, 2001; Lauffer, 1994; Perry & VandeKamp, 2000; Perry et al, 2002) The pedagogical innovations explored by working groups during the first year have included:

- developing mathematical language through role play and use of puppets
- developing the home corner
- developing a child-directed table or area
- developing writing through role play areas (eg: Post Office, School Office)
- promoting Reciprocal Learning
- Reciprocal Learning in relation to Mathematical Language
- Peer Tutoring
- Collaborative Group Work

The development of these pedagogical innovations, and the children's responses to them , were recorded as follows:

- A **Questionnaire** was distributed at the beginning of the year to gather background information about the settings and to question practitioner's initial thoughts about what encourages and constrains independent learning in relation to their setting, class and themselves. The practitioners completed this second part of the questionnaire again towards the end of the year, so that changes in their thinking in relation to opportunities and constraints in relation to independent learning can be assessed.
- **Reflective Journals** were used for practitioners to reflect on their practice in relation to independent learning. They include observation sheets to record children working / playing with the innovation they have introduced. There were also record sheets for practitioners to reflect on the innovation and to record any changes and developments with it. Practitioners also used digital cameras and, in some cases, video cameras, to record significant pieces of children's learning and behaviour.
- Practitioners were engaged in a process of **Reflective Dialogue**. This is a research and professional development technique that enables in-depth discussion and learning between practitioner and research partner. It involves the following procedure:
 - the researcher video records examples of the pedagogical innovation in the class
 - the practitioner watches the video and selects particular sequences within the video which they feel exemplifies important elements of children's self-regulation / independent learning
 - the researcher and practitioner watch these selected sequences together and the researcher engages the practitioner in a Reflective Dialogue, questioning the practitioner and requiring them to articulate what they feel are the special elements of the sequence, what is the observable

evidence of independent learning, and what the practitioner has learnt from examining this sequence.

The data collected within the Reflective Journals and Reflective Dialogues has been analysed to produce a catalogue of Independent Learning Events. For each event are recorded:

- the pedagogical characteristics of the innovation:
 - environmental provision enabling the activity
 - pedagogical intention of the activity
 - the level, type and quality of involvement in the activity of the practitioner or other adult
- the elements of independent learning which are encouraged or afforded by the activity (using the 20 items of the Checklist of Independent Learning Development 3-5).

From this analysis of Independent Learning Events catalogued in Year 1 of the project, it will be possible to identify types of pedagogical practice and areas of independent learning which are under-represented, and so enable the work of Year 2 of the project to focus in these areas.

Year 1 Project Outcomes & Findings

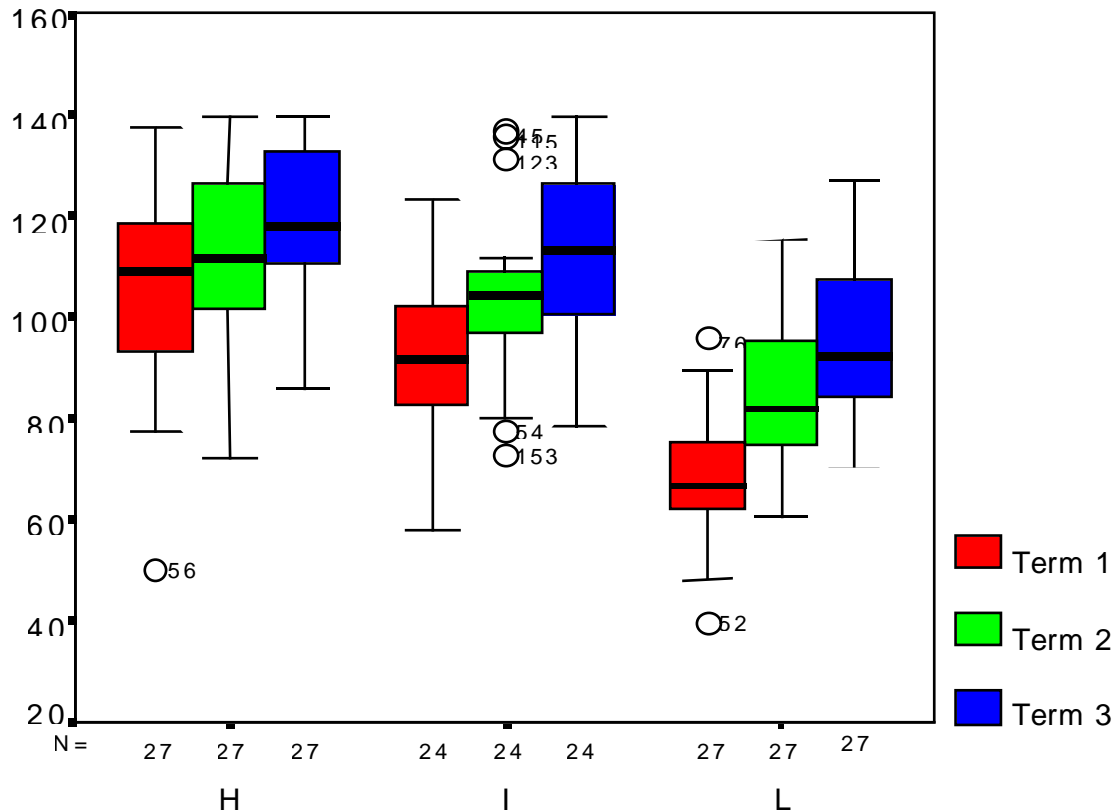
In the remainder of the paper we focus on the two most significant outcomes of the project in Year 1. These relate to the development of the Checklist of Independent Learning Development 3-5 and the catalogue of Independent Learning Events.

Children's Independent Learning Inventory (CHILD 3-5)

Two kinds of analysis were carried out in relation to the data obtained from the practitioner's completion of the assessment checklist. First, it was attempted to establish that the checklist effectively discriminated between children who were less and more developed in terms of their self-regulatory behaviours.

The boxplot contained in Figure 1 presents the results for this comparison. For this purpose the categories on the checklist for each statement were scored as follows: always = 4, usually = 3, sometimes = 2, never = 1. On the boxplots, the whiskers represent the entire range (excluding outliers), the box represents the middle 50% of cases and the thick black line represents the median.

Figure 1
Boxplot of total independent learning scores at the beginnings of Terms 1, 2 & 3, by level of independence.



Level of independence (teacher assessment)

As can be seen, the checklist has provided a clear discrimination between the high (H), intermediate (I) and low (L) independence groups. Within each of the groups there is also clear progression over the three terms, with the low independence group apparently making the most progress, which is perhaps what would be predicted. As the range of the low group has also clearly extended, it may well be that some children in this group, who were perhaps rather uncertain on first arrival in their new class, have made particularly rapid progress as they have become more secure.

The high level of self-regulation shown amongst this sample of 3-5 year old children is also worthy of note. A score of 105 on the checklist indicates that a child was, on average, showing the ability to 'usually' perform independently across the wide range of behaviours covered by the checklist. The results in Figure 1 show that the vast majority of children in the 'high' and 'intermediate' groups, and even the top 25% of the 'low' group had achieved this by the third term in the year. This result was also borne out by the analysis of Independent Learning Events reported below, based upon direct observations of the children's performance in their educational settings.

Second, the results for the original 35 statements were analysed to establish which appeared to be most significant for the 3-5 age group represented in the project sample of 96 children. The statements were ranked according to three criterion:

- those statements which discriminated most between high and low independence children (i.e. average difference of mean scores between these two group over the three assessments)
- those statements for which scores changed the most between the first and third assessments
- those statements ranked the most significant by the practitioners in relation to the children in their class

This procedure produced a list of 20 statements which seemed to account for a very high proportion of the variance in scores, and were generally recognised by the practitioners as significant. They also appeared to fall very equally into the four categories of self-regulation identified by Bronson (2000), which may be seen as a validation both of Bronson's model and of the 20 statements which emerged to form the Checklist of Independent Learning Development 3-5 arising from the present study.

These statements are as follows:

Emotional

- Can speak about own and others behaviour & consequences
- Tackles new tasks confidently
- Can control attention and resist distraction
- Monitors progress and seeks help appropriately
- Persists in the face of difficulties

ProSocial

- Negotiates when and how to carry out tasks
- Can resolve social problems with peers
- Is aware of feelings & others and helps and comforts
- Engages in independent cooperative activities with peers
- Shares and takes turns independently

Cognitive

- Is aware of own strengths & weaknesses
- Can speak about how they have done something or what they have learnt
- Can speak about planned activities
- Can make reasoned choices and decisions
- Asks questions and suggests answers

Motivation

- Initiates activities
- Finds own resources without adult help
- Develops own ways of carrying out tasks
- Plans own tasks, targets & goals
- Enjoys solving problems

During the 2nd Year of the project this Inventory will be further used and trialled by practitioners, and subjected to further statistical analysis, in order to establish a well validated and reliable instrument which will be of use to Early Years practitioners and researchers in this area.

Independent Learning Events

In the first year of the project we have catalogued over 200 'events' each of which demonstrates a particular pedagogical practice or children's activity, and which has been analysed in relation to its pedagogical characteristics and the elements of self-regulation or independent learning which it affords.

These Independent Learning Events have provided a wealth of evidence of the ability of children in the 3-5 age range to self-regulate their learning in each of the 4 areas of the CHILD 3-5 checklist. They have also illuminated a range of pedagogical issues in relation to encouraging independent learning and metacognitive abilities in children in this age range. The following list is a small selection of some of the general pedagogical points which have emerged:

- The children learnt a great deal by watching one another
- Given the opportunity to make their own choices and decisions, the children were remarkably focused and organised and pursued their own plans and agendas with persistence and sometimes over surprisingly long periods of time
- Sometimes when an adult became involved in an activity the children were more inclined to say they couldn't do something, but if they were working with another child they were less likely to question their ability, and often mimicked the other child, gaining confidence in their abilities
- The most effective response the practitioner can give to a child asking for help is to refer them to another child who has greater competence or expertise in the particular area
- Sometimes it is best for adults not to intervene in children's disputes and disagreements in collaborative play, but give them time and space to resolve issues themselves
- The important distinction between praise (which produces teacher pleasers) and encouragement (which gives information/feedback and supports independence)
- Children differ between those who respond well to open-ended, child-initiated tasks and those who like a supportive structure established by an adult; both kinds of opportunities need to be provided

And finally, two quotations from practitioners involved in the project about the value they have come to place on working with their children in ways which encourage independent learning:

'Learning is intrinsic to life and because it is this important children need to be the owners of their own learning; they won't see it as intrinsic to life if they don't own it themselves – everything they do must have a purpose which makes sense to them'

And to the question, 'when the project has finished, do you think you will carry on or stop working in this way?':

'Oh yes, I could not now. They would absolutely kill me if I didn't! No I would, definitely, because it's been so valuable, and it's been really good for everybody.'

It's been good for me to see different sides of the children, and to relinquish some space and control to them. And it's just had really good feedback from them and from parents, and you know throughout, they're all fired up about it.'

In the following pages 4 examples of Independent Learning Events are presented to give a flavour of the nature of these Events. In each case the description of the event is illustrated by stills from video sequences, children's and practitioners' dialogue, and an analysis of the CHILD 3-5 statements which are afforded or encouraged by the event.

Next Steps in Year 2

The Process

In the 2nd Year of the project we will be recruiting 16 more practitioners, to make 32 in all (16 Nursery and 16 Reception). The practitioners from Year 1 (Cohort 1) will focus on areas of independent learning that have emerged as interesting to them through their work in Year 1. This may involve:

- case studies of individual children, trialling and validating the new CHILD 3-5 checklist
- exploring particular aspects of classroom organisation or pedagogical practice which encourage independent learning/self-regulation
- investigating types and styles of adult-child interaction which nurture independent/metacognitive thinking and abilities

Cohort 2 will follow a similar pattern to Year 1, working in home groups of 4 to explore a pedagogical strategy, and will trial the new CHILD 3-5 checklist with 6 children from their class

Pairs of practitioners from the two cohorts will also work together, with reciprocal visits to one another's settings, giving Cohort 2 the opportunity to learn from the experiences of Cohort 1, and giving Cohort 1 the experience of explaining and articulating ideas developed during Year 1.

Both cohorts will continue to collect observations and evidence of Independent Learning Events to contribute to the developing catalogue. By the end of the project it is hoped to have a catalogue of at least 500 events for analysis.

The Product

In order to disseminate findings from the study to the Early Years community, a training pack will be produced, consisting of a CDROM containing examples of activities and pedagogical strategies that have been found to be beneficial during the project. The CDROM will also contain individual case studies showing the development of individual children over a year, and the final CHILD 3-5 checklists illustrated with examples of each of the areas of learning.

The Future

From the results of the first year of the project, it is clear that there is considerable scope to develop the independent learning abilities of children in the 3-5 age range. In the future we hope to be able to expand the project to working with older children throughout the Primary Years. With the introduction of a detailed and content-heavy National Curriculum, and National Strategies for Literacy and Numeracy, time for children to follow their own ideas, to make their own choices, and develop as self-regulating learners, has been sharply diminished. Increasingly, practitioners and policy-makers are beginning to see the importance of restoring this balance. We hope to make an important contribution by helping practitioners to develop well-founded, well-researched and workable ways of developing children's abilities in these areas.

References

Biemiller, A. & Meichenbaum, D. (1992) The Nature and Nurture of the Self-Directed Learner, *Educational Leadership*, October

- Bronson, M.B. (2000) Self-Regulation in Early Childhood, New York: The Guilford Press
- Brooker, L. (1996) Why do children go to school? : consulting children in the Reception class, Early Years, 17, 1, 12-16
- Brown, A.L. (1987) Metacognition, executive control, self-regulation and other more mysterious mechanisms. In F. E. Weinert & R.H. Kluwe (eds) Metacognition, Motivation & Understanding (pp. 65-116) Hillsdale, NJ: Lawrence Erlbaum
- Critchley, D. (2002) Children's assessment of their own learning. In C. Nutbrown (ed) Research Studies in Early Childhood Education, Trentham Books
- Featherstone, S. & Bayley, R.(2001) Foundations of Independence, Featherstone Education
- Flavell, J.H. (1979) Metacognition and cognitive monitoring: a new area of cognitive developmental inquiry. American Psychologist, 34, 906-11
- Forrest-Pressley, D.L., MacKinnon, G.E. & Waller, T.G. (eds) (1985) Metacognition, Cognition & Human Performance, New York: Academic Press
- Hendy, L. & Whitebread, D. (2000) Interpretations of independent learning in the Early Years, Internat. J. Early Years Education, 8, 3, 245-52
- Lauffer, M. (1994) Fostering Independent Learners by Teaching Metacognitive Skills, Teaching & Change, 1, 4, 315-32
- Perry, N.E. & VandeKamp, K.J.O. (2000) Creating classroom contexts that support young children's development of self-regulated learning, International Journal of Educational Research, 33, 821-43
- Perry, N.E., VandeKamp, K.J.O., Mercer, L.K. & Nordby, C.J. (2002) Investigating Teacher-Student Interactions That Foster Self-Regulated Learning, Educational Psychologist, 37, 1, 5-15
- Schunk, D.H. & Zimmerman, B.J. (1994) Self-Regulation of Learning and Performance, Hillsdale, N.J: Lawrence Erlbaum
- Sugden, D.(1989) Skill generalisation and Children with Learning Difficulties, ch.4 in Sugden, D.(ed) Cognitive Approaches in Special Education, Falmer Press
- Winne, P.H. & Perry, N. E. (2000) Measuring self-regulated learning. In P. Pintrich, M. Boekaerts, M. Zeidner (eds) Handbook of Self-regulation, Orlando, FL: Academic Press
- Zimmerman, B.J. & Schunk, D.H. (eds) (2001) Self-Regulated Learning and Academic Achievement, 2nd ed., Hillsdale, N.J: Lawrence Erlbaum

