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Developing Independent Learning in the Early Years

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Abstract

This paper describes a research project currently running in Cambridgeshire Foundation Stage settings exploring the development of independent learning in young children. In the first year the project has explored the work of 16 practitioners working with 3-5 year old children, 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 development of the range of abilities involved in becoming a self-regulating, independent learner has been conceptualised in terms of research and theory relating to the development of 'metacognitive' abilities and dispositions.

It is argued that, while the development of independent learning is generally accepted as an important educational aim, current trends in Primary education which have encouraged a more teacher-directed approach, are not helpful. The paper advances a model of independent learning which is based on developmental psychological research, and presents interim findings from the project which suggest that even our youngest children are capable of considerable independence in their learning. While particular pedagogical techniques and approaches need to be developed, many of these are well-established and researched, and can be shown to be effective in fostering independent learning abilities within the Primary school context.

Introduction

The aim of a good teacher should, of course, be to make themselves redundant. If we are to properly educate others, we must enable them to become independent learners. There is currently widespread interest in fostering 'independent learning' among young children, as attested by a number of recent publications (Featherstone & Bayley, 2001; Williams, 2003) and, particularly within the Early Years phase of education, by the current enthusiasm for such approaches as Reggio Emilia and HighScope, both of which emphasise children's autonomy and ownership of their learning, together with the value of making the processes of learning explicit to the child. This paper seeks to respond to this interest in two ways. Firstly, by examining the psychological and educational research literature for work which might inform our understanding about the nature of independent learning. And secondly, by reporting on the interim findings of a two-year research project exploring the development of independent learning capabilities in children aged 3-5 years.

The Education Policy Context

Recent initiatives, circulars and curriculum documents from various government agencies have given prominence to the idea of independent learning. They have also offered a range of suggestions as to what it might involve. In the recent set of QTS Standards entitled *Qualifying to Teach* (DfEE/ TTA, 2002), for example, teacher trainees are required under Standard S3.3.3 'Delivering effective lessons' to 'make learning objectives clear to pupils' and 'promote active and independent learning that enables pupils to think for themselves, and to plan and manage their own learning'.

The OFSTED Handbook for the Guidance on the Inspection of Nursery and Primary Schools (1995), however, offers a rather different slant:

'Pupils should:

- show initiative and be willing to take responsibility
- show interest in their work and be able to sustain concentration and develop their capacity for personal study
- have an ability to select and use relevant resources

and that there should be

- opportunities for pupils to take on responsibility, demonstrate initiative'

At the level of curriculum, in the Curriculum Guidance for the Foundation Stage (DfEE/QCA, 2000), which established the new curriculum for children between 3-5 years of age, one of the stated 'Principles for early years education' (p.3) is that there should be 'opportunities for children to engage in activities planned by adults and also those that they plan and initiate themselves'. Again within the Personal and Social and Emotional Development area of learning, practitioners are enjoined to give particular attention to:

- 'ensuring that there is time and space for children to focus on activities and experiences and develop their own interests
- planning experiences that help children develop autonomy and the disposition to learn
- planning for the development of independence skills ...' (p.28)

It is clear from these and other governmental policy statements that there is currently a strong commitment to the area of independent learning. However, there is also a need for clear definition. It is also apparent that, while there is a clear interest in and commitment to fostering independent learning from governmental agencies, education policy makers and teachers, transforming these intentions and aspirations into everyday classroom practice within schools has proved problematic.

There appear to be problems at the level of policy and at the level of classroom practice. To begin with, while the Government and the various educational policy-making institutions have repeatedly asserted their commitment to fostering independent learning, it has been argued that, in some respects, current educational policies, including recent initiatives, are confused in their impact on the development of children's independent learning. The focus of the National Curriculum, for example, has been claimed to be on content and the body of knowledge children need rather than on more generic learning and thinking skills. To some extent this has been recognised in the most recent incarnation of the National Curriculum (DfEE/QCA, 1999) with the introduction of Key Skills, including 'Improving own learning performance' and 'Thinking Skills'. The introduction of very focused literacy and numeracy strategies within Primary schools have also been claimed, at least in their initial impact, to have constrained opportunities for the development of individual learning styles and independent lines of enquiry. The pressures of target-setting and the publication of league tables of SATs performance, where rather narrowly defined aspects of children's learning are given an overweening significance, also do not seem conducive to the spirit of

promoting independence. In relation to fostering children's abilities to learn and think for themselves, there is clearly a need for what has been termed 'joined-up thinking' in the area of educational policy.

The Context of the Educational Setting

At the level of everyday classroom realities, however, there are also problematic issues in relation to independent learning. The need to maintain an orderly classroom, combined with the pressures of time and resources, and teachers' perceptions of external expectations from Headteachers, parents and government agencies, can often mitigate against the support of children's independence.

Galton (1989), based on the extensive classroom observations which formed the basis of the ORACLE studies, is only one of a number of educational researchers who have highlighted the ambiguity of classroom demands in this area. While many teachers avowedly seek to encourage children to be independent in their work, to think of their own ideas, to use their initiative, the classroom ethos they actually generate makes this kind of behaviour very high risk.

Evidence from a study across the Foundation Stage and Key Stage 1 conducted by one of the present authors (Hendy & Whitebread, 2000) very much supported this view. The Early Years teachers interviewed shared a commitment to encouraging greater independence in learning among young children, but held a wide spectrum of views about the essential key elements within it, and of their role in fostering the necessary skills and dispositions. There was a dominant concern, nevertheless, with the *organisational* element of children's independence, as opposed to any concern with cognitive or emotional. The approach of many of the teachers could be characterised as a concern for children to develop as independent *pupils*, rather than as independent *learners*. Perhaps most significantly, however, was the finding that the children appeared to become more, rather than less, dependent on their teachers during their first few years in school. Nursery aged children, for example, were consistently more likely than the older children in the study to suggest they would try to resolve problems themselves. Older children were more inclined to involve adults. These results were also paralleled by the views of the teachers. Whereas 75% of Yr 1/2 teachers thought that adults were the main source of help in the classroom, Nursery teachers had a counter view and were more likely to cite children's self-help as a major strategy.

Nevertheless, Galton (1989) has argued that the situation is not unresolvable. Tension in relation to independence arises, he claims, when teachers expect the children to negotiate in relation to their learning, but are not willing to allow any negotiation in relation to control. He cites examples of teachers who have successfully opened up the rules of classroom behaviour to shared decision-making, with a consequent sense of ownership among the children for the classroom ethos, and a much higher level of independent thinking and working becoming apparent.

It also seems evident from all this foregoing evidence that, if early years practitioners are to successfully foster independent learning in their settings, a clear

understanding needs to be developed of the skills and dispositions involved in independent learning, and of the pedagogical practices which are most likely to foster these. The next section of this paper will, therefore, review the relevant research literature from developmental psychology before we proceed to look at research exploring educational practices which might be helpful in this area.

Psychological Approaches to Independent Learning

Within cognitive developmental psychology over the last 30 years or so there has been a very considerable body of research evidence related to the development of children as independent learners. Within the psychological literature this has been variously characterised as 'learning how to learn' (Nisbet & Shucksmith, 1986), 'reflection' (Yussen, 1985) 'self-regulation' (Schunk & Zimmerman, 1994) and 'metacognition' (Metcalf & Shimamura, 1994), all of which are concerned with children's developing self-awareness and control of their own mental processing. What has emerged is a body of research and theory which suggests that it is this aspect of development which is crucially responsible for individual differences in children's development as learners. Certainly, it is well established that metacognitive deficits are common among children with Special Educational Needs (Sugden, 1989).

Much of this research has stemmed from the work and ideas of John Flavell (1979) whose interest in the area originated in the seminal study of Flavell, Beech and Chinsky (1966). Within this study young children under the age of 7 years were found to be capable of carrying out a taught memory strategy, but incapable of producing that strategy for use spontaneously (or independently!). This led to Flavell's development of a model of 'metamemory' and Ann Brown's (1987) model of metacognition which consisted of three related elements:

- *metacognitive experience*: the on-line monitoring or self-awareness of mental processing, and reflections upon it
- *'metacognitive knowledge'*: the knowledge which is gradually accumulated about one's own mental processing, tasks and cognitive strategies for dealing with tasks
- *'self-regulation'*: the metacognitive control of mental processing, so that strategies are developed and used appropriately in relation to tasks.

There have been two significant later developments in this area of research. First, there has been a broadening of notions of self-regulation to include emotional, social and motivational aspects. The clear relationship between cognitive and motivational aspects of metacognition were recognized early in Weinert and Kluwe's (1987) edited collection entitled 'Metacognition, Motivation and Understanding'. A number of chapters here, for example, focused on the metacognitive aspects of attributions of success and failure. In this general coming together of different research traditions, the cognitive psychologists have taken over the notion of self-regulation from motivational research, and theories of emotional development have gradually taken on board the ideas about increasing self-awareness and self-knowledge from the work on metacognition, culminating, amongst other things, in

the emergence of the model of emotional intelligence (Goleman, 1995). Understandings emerging from neuroscience also support a model which integrates emotional and cognitive aspects of self-regulation. The development of metacognitive, self-regulatory executive functions appears to be related to developments in the frontal lobes (Barkley, 1997)

Second, there has been the recognition of metacognitive processes in very young children. In the early work on metacognition, some writers argued that it is a late-developing capability. However, this very quickly became an untenable position, once the emphasis switched from metacognitive knowledge to metacognitive experience. Flavell (1977) recognized very early that the development of these processes was 'one of the really central and significant cognitive-developmental hallmarks of the early childhood period' (p.64) In a recent and very comprehensive overview, Bronson (2000) demonstrates that the development of metacognitive and self-regulatory processes is fundamental to the whole range of young children's psychological growth. She lists work with children concerned with the development of the regulation of arousal, of emotional responses, of adaptive control of behaviour in familiar settings, of problem-solving and of motivational patterns. She goes on to describe in detail extensive research which has explored the emotional, prosocial, cognitive and motivational developments in self-regulation throughout the different phases of early childhood. The model of independent learning used and developed within the study of 3-5 year olds reported in the latter part of the present paper is largely based on Bronson's analysis of work in this area.

The Pedagogy of Self-Regulation

Explanations of the origins and development of self-regulation, and the role of parents and educators within this, have often been cast within a Vygotskian framework (eg: Schunk & Zimmerman, 1994) and a good deal of research has explored the ways in which adults 'scaffold' children's learning and model the processes of learning for the child. Collins, Seely Brown & Newman (1989) provided an extensive review of approaches which they termed 'cognitive apprenticeship' models of teaching and learning whereby, using various techniques, adults help to make the processes of learning explicit to children.

Several other useful pedagogical techniques deriving from this broad tradition have been investigated and developed. These include:

- 'co-operative groupwork' (Forman and Cazden, 1985): a range of techniques involving children in collaborative activities which oblige them to articulate their own understandings, evaluate their own performance and be reflective about their own learning.
- 'reciprocal teaching' (Palincsar & Brown, 1984): a structured procedure which involves teachers modeling the teaching of a particular task to children who are then asked to teach the activity to their peers
- 'self-explanations' (Siegler, 2002): an instructional practice which requires children to give 'how' and 'why' explanations about, for example, scientific phenomena or the events in a story, and then asks children to give explanations of their own and an adult's reasoning

- 'self-assessment' (Black and Wiliam,1998) a range of pedagogical ideas involving children's self-assessment of their own learning, including, for example, children making their own choices about the level of difficulty of tasks to be undertaken, and selecting their best work for reflective portfolios
- 'debriefing' (Leat & Lin, 2003): a range of techniques for reflecting upon an activity or piece of learning including 'encouraging pupils to ask questions', 'making pupils explain themselves' and 'communicating the purpose of lessons'.

The other important idea in this area relates to Galton's (1989) analysis of the significance of giving children an increased role in decision-making in the classroom, thus giving them responsibility for and ownership of their own learning. Within the UK, Brooker's (1996) analysis of her work with a Reception class over a year provides an excellent example of this kind of work. She began, before the start of the school year and during the first term, by interviewing the children on a number of occasions, asking them, amongst other things, 'why do children go to school?', 'what are you good at?', 'what do you like doing best?', and 'how do you think you learn things?' In the spring term she moved on to develop the habit of self-assessment, training herself to withhold the usual excessive praise bestowed on children of this age and instead asking them 'how do you think you got on them?' At the end of the second term she asked the children 'what would you like to learn next term, after the holidays?' and this began a final phase during which, by a process of constant discussion and negotiation, the children gradually acquired more and more ownership of the curriculum and procedures of the classroom. At each stage the children were carefully listened to and their answers systematically recorded. Progressively, as the year went on, their views influenced the content and organization of their school day. Brooker's account is full of evidence of the children's enthusiastic responses to each of these initiatives, to their work in the classroom and the quality of what they achieved.

Nancy Perry and colleagues have been engaged in similar work with young children from kindergarten to grade 3 in British Columbia (Perry, VandeKamp, Mercer & Nordby, 2002). Her work quite explicitly challenges the views of earlier theorists that such young children are not capable of the complex metacognitive processes involved in self-regulated learning. They have engaged in extensive observations in classrooms and interviews with teachers and have provided evidence that of young children planning, monitoring, problem-solving and evaluating their learning mostly in relation to reading and writing tasks. The pedagogical elements which emerged as being most effective in promoting self-regulated learning in these classrooms involved the teachers in offering choices to the children, in offering opportunities for the children to control the level of challenge in tasks and opportunities for children to evaluate their own work and that of others. However, what Perry's detailed analysis of the classroom discourses of teachers who were highly effective in this area reveals is a complex and highly skilled set of practices whereby all kinds of instrumental supports were provided to enable the children to develop independent learning skills and dispositions. The use of co-operative ways of working, together with an evaluative style that was non-threatening and mastery-

orientated, were two significant elements in these support structures.

The Cambridgeshire Independent Learning (CINDLE) in the Foundation Stage project

The remainder of this paper presents interim findings from the end of the first year of a 2 year project inspired by the psychological and educational research reviewed above. The CINDLE project is funded by the Cambridgeshire Care and Education Partnership and is aimed at exploring the development of independent learning in Nursery and Reception classrooms. 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

Methodology

In the first year the project 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, mostly derived from the previous literature, which were similarly recorded. The project 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, and the classroom observations, enabled the production of a 22 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 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 were 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 also chose an activity or innovation that they could develop in their own settings to encourage some aspect of independent learning. Innovations were suggested by the research team again based on the previous research of pedagogical practices fostering self-regulation in young children reviewed above. The pedagogical innovations explored by working groups during the first year 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 (see Moyles, Paterson & Kitson, 2003, for a review of its development). 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 was analysed to produce a catalogue of Independent Learning Events. For each event were 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 were encouraged or afforded by the activity (using the 22 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.

<INSERT FIGURE 1 ABOUT HERE>

As can be seen, the checklist provided a clear discrimination between the high (H), intermediate (I) and low (L) independence groups. Within each of the groups there was 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. Two further statements were also added under the Cognitive heading following the analysis of Independent Learning Events from the classroom observations and video

analysis. Together, these 22 statements formed the Checklist of Independent Learning Development 3-5. Table 1 lists each of these statements and provides an example of an Independent Learning Event in which each of these behaviours is present.

<INSERT TABLE 1 ABOUT HERE>

During the 2nd Year of the project this Inventory will be further used and trialed 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

Also in the first year of the project we have catalogued a total of 322 Independent Learning 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 CHILDE 3-5 checklist. An initial analysis has suggested that 59.6% of these Events have contained evidence of an emotional aspect of independent learning, 58.7% some prosocial aspects, 67.4% some cognitive aspect and 74.5% a motivational aspect. The statements from the CHILDE 3-5 checklist of which there is most evidence are as follows:

Emotional

Tackles new tasks confidently
Can control attention and resist distraction

Prosocial

Engages in independent co-operative activities with peers

Cognitive

Can speak about how they have done something or what they have learnt
Can make reasoned choices and decisions

Motivational

Initiates activities
Develops own ways of carrying out tasks

For each of these statements over 100 instances are recorded within the Events collected during the first year of the project. The Events 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

Finally, the following two quotations from practitioners involved in the project make very clear 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 (the children) 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.'

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.

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

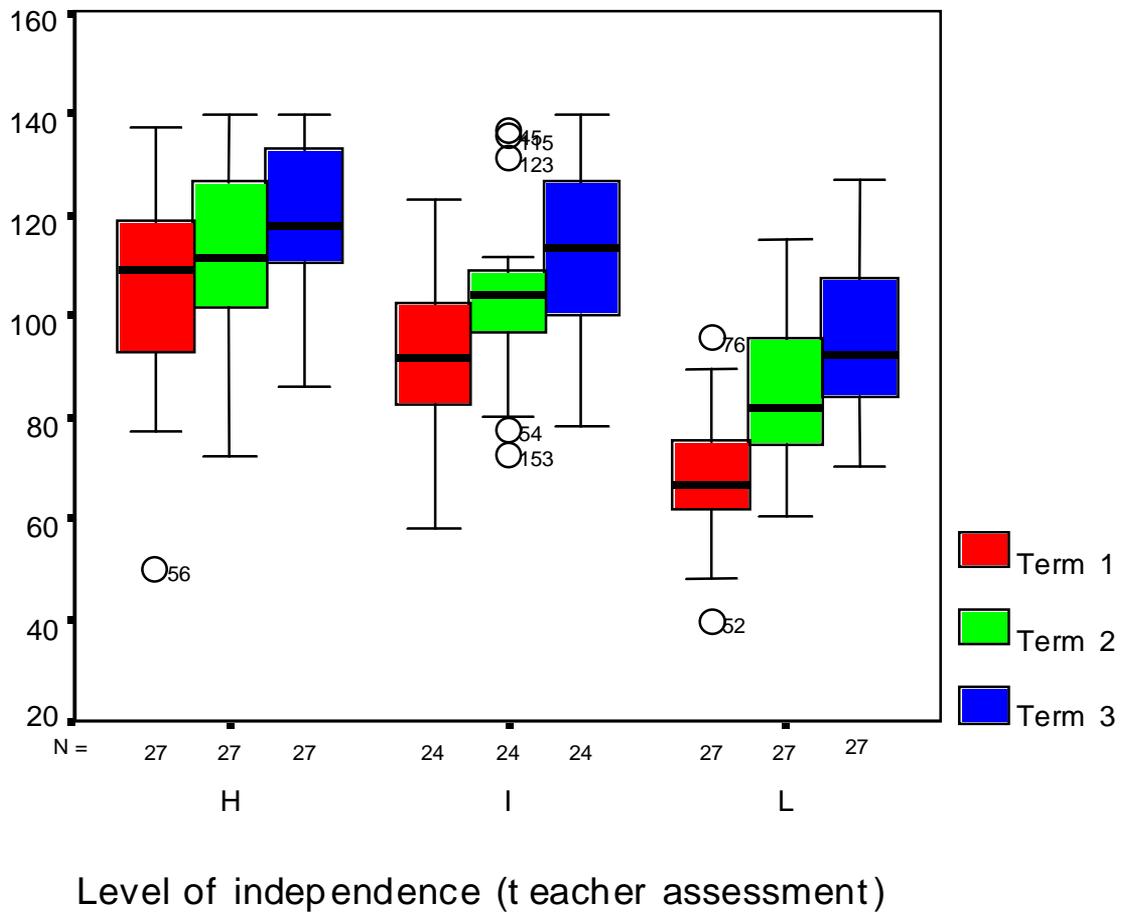


Table 1
Checklist of Independent Learning Development 3-5

Statement	Exemplar Event	Description
EMOTIONAL ELEMENTS OF INDEPENDENT LEARNING		
Can speak about others behaviour and consequences	Warning about paper clips	Three children are playing in the workshop area. A girl that appears to be leading the game is explaining the rest of the group how dangerous paper clips can be, modelling the correct way of using them
Tackles new tasks confidently	Counting to a 100 Making big sums Counting backwards Counting forever	A sequence of events representing a clear progression in the way children spontaneously set up and solve increasingly more challenging mathematical tasks after being provided with enough cognitive structuring by the teacher.
Can control attention and resist distraction	Fixing a bike	A child has entered the workshop area and has decided that he is going to fix the bike that has been placed as part of the setting. The child remains on task for an extended period of time using different tools and checking the outcomes of his actions.
Monitors progress and seeks help appropriately	Building a bridge	A group of children have decided to build a bridge to get to a castle but the bridge keeps falling down. The 'builders' actively seek the advice of other children that stop in front of the construction to see what is happening.
Persists in the face of difficulties	Finding the screwdriver	A girl has entered Santa's workshop area. She is looking for the screwdriver to make some toys. She actively looks for it and asks for the other children's help. After 15 minutes where she appears to have been engaged in other activities, she finally finds it. 'I found the screwdriver!'
PROSOCIAL ELEMENTS OF INDEPENDENT LEARNING		
Negotiates when and how to carry out tasks	Planning the game Playing in small group	A group of children have been encouraged to create a game using a hoop and a ball. The children actively discuss who is going to hold the hoop and who is going to throw the ball. They all agree they have to take turns. 'Otherwise it wouldn't be fair' says one of the children. They try out the game before teaching it to the rest of the class.
Can resolve social problems with peers	Negotiating number of children	Too many children are in the workshop area. A child becomes aware of the situation and acts as a negotiator trying to determine who can stay and who has to leave. He uses different questions to solve the problem: 'Who doesn't want to be here?', 'Who's been here the longest?'
Is aware of feelings of others; helps and comforts	Making cards	A girl helps a boy make a card. She doesn't 'do' it for him but has been asked to show him what to do. During the sequence she is very helpful and 'keeps an eye on him'. She does not take over, yet seems to take pride in the helping process.
Engages in independent co-operative activities with peers	Three Little Pigs crisis	Children are playing Three Little Pigs in the role play area. A 'crisis' has been introduced. The Big Bad Wolf has stopped the electricity getting to the house. The children are exploring using torches and working out what to do.
Shares and takes turns independently	Taking turns	A group of girls are playing a lottery game. They spontaneously take turns asking: 'Whose turn is it?' and reminding each other: 'It's your turn now!'
COGNITIVE ELEMENTS OF INDEPENDENT LEARNING		

Is aware of own strengths and weaknesses	Counting beans with Jack	A girl is counting beans using a puppet (Jack). Being aware that there are too many beans to count, she decided to put some of the beans away so Jack can 'count them better'.
Can speak about how they have done something or what they have learnt	Drawing a fire	Two boys sit side by side at the drawing table and discuss how to draw a fire. One says it is a zig-zag shape and draws an example, saying that his mummy told him it was like this. The other disputes this and says it goes little and then very big, drawing small downward lines and long vertical lines. They talk about how fire is spread and how the flames move.
Can speak about planned activities	The castle	Two girls have decided that they want to make a castle in the play area. Being prompted by the teacher's questions they verbalize what they want to put in the castle, the materials they need and what to do first.
Can make reasoned choices and decisions	Writing an animal story	Two boys collaborating on a story decide between them that they want it to feature a particular animal so send someone in search of a picture to copy.
Asks questions and suggests answers	Skeletons	A group were interested in skeletons, and the Nursery Nurse helped them to draw around one another and copy pictures from books to fill in their skeletons. The children felt the bones in their bodies as they drew. They asked questions about the bones and in some cases one child answered another's question.
Uses a strategy previously modelled	Peer support in writing	Two boys support another with his writing when they see him struggle. They communicate clearly, using strategies they have heard from their teacher, and are sensitive to his feelings.
Uses language previously heard for own purposes	Writing messages	Two girls help a boy who also wants to write. They track what he is doing and point to an example of a message (written by a child) on the wall and draw attention to the individual letters, naming them for the boy.
MOTIVATIONAL ELEMENTS OF INDEPENDENT LEARNING		
Initiates activities	Making computers	Two children decide to make a computer out of a cardboard box. They work collaboratively together and persist when things don't go well eg; working out how to join the box (computer screen) to the table.
Finds own resources without adult help	Goldilocks and the three bears	The children have decided to recreate the story of Goldilocks and the three bears. They have found three boxes of different sizes for the beds, three bowls and spoons for the bears and a pot to cook the porridge.
Develops own ways of carrying out tasks	Making books	One child made a 'book' by sellotaping together three small sheets of computer paper. She drew simple illustrations and asked her teacher to scribe the story for her. It was a perfect story: 'The cat was lost. The flower was lonely. The dog had no friends. The sun came out and cheered them all up.' The book was read to the class and by four weeks later half the class had made books using the same method.
Plans own tasks, targets and goals	Christmas wrapping	A group of children have turned the play area into Santa's workshop. They have decided that they are going to wrap presents; they have found resources, and they have negotiated their roles.
Enjoys solving problems and challenges	Building a bridge	The teacher has set up a problem: the children need to get a treasure located at the other side of the room, crossing a river filled with crocodiles. The children decide to build a bridge and they co-operate to achieve their plan.

