

Exploring Educational Psychologists' Use of Dynamic Assessment with Children in the Early Years Foundation Stage: A Review of the Literature

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In England, the Early Years Foundation Stage (EYFS) curriculum (ages 0 to 5) emphasises the use of a play-based approach, focusing on the needs, interests and developmental stages of children. Dynamic assessment (DA) represents an opportunity for educational psychologists (EPs) (Hill, 2015) to utilise a play-based approach for assessing the functional behaviour of children who find it difficult to engage with formal and static testing situations (Tzurriel, 2000). However, it is one of the least utilised methods in EP practice (Hill, 2015).

Using systematic literature review methodology and research quality assessment frameworks, this paper examines the usefulness of DA with children in the EYFS. The review indicated mixed results for the usefulness of DA. DA added value to static assessments for cognitive and linguistic functioning, reduced the risk of biased assessment and contributed predictive information about later independence. Future research should explore EPs' use of DA in the EYFS.

Keywords: early years, educational psychologists, dynamic assessment

Introduction

Early Years Foundation Stage

In 2008, the Early Years Foundation Stage (EYFS) was introduced to provide a framework outlining standards for the learning and development of children from birth to five years (Palaiologou, 2016) in all types of early years (EYs) provision, such as nursery care, childminders and reception class in schools. It was designed to raise standards and improve access to positive experiences for all children (Nutbrown & Carter, 2009). The EYFS framework sets out four guiding principles behind the good practice which should be found in early years' settings. These are:

- every child is **unique**, who is constantly learning and can be resilient, capable, confident and self-assured;
- children learn to be strong and independent through **positive relationships**;
- children learn and develop well in **enabling environments**, in which their experiences respond to their individual needs and there is a strong partnership between practitioners and parents and/or carers; and
- **children develop and learn in different ways and at different rates** (Thornton & Brunton, 2010).

The EYFS is organised around seven areas of learning:

- communication and language
- physical development
- personal, social and emotional development
- literacy
- mathematics
- understanding the world and
- expressive arts and design (Wood & Attfield, 1996).

The EYFS was paralleled with the EYFS profile, which is a summative assessment at the end of the foundation stage (just before children start Key Stage 1), the purpose being to collect evidence over the two years to compile the profile using observation, analysis and planning (Nutbrown & Carter, 2009).

In an independent review of the EYFS by Tickell (2011), there is clear evidence that outcomes for young children are improving. However, it also highlighted that almost half of the children (44 per cent) are still not considered to have reached a good level of development by the time they are five. Tickell (2011) highlights that early identification of need followed by appropriate support is the most effective

approach to helping children overcome specific obstacles to learning. Practitioners have a responsibility to identify needs and intervene with appropriate support as early as possible (Rose & Rogers, 2012; Tickell, 2011).

Educational Psychologists and Early Years' Assessment

Assessment of individual children has remained a major focus of professional activity for EPs (Ashton & Roberts, 2006; Fallon, Woods & Rooney, 2010; Freeman & Miller, 2001). Elliott, Lauchlan and Stringer (1996) believe that "[p]sychological assessment should involve a creative investigation of a broad range of hypotheses that build on research from all areas of Psychology" (p. 152). The Currie Report (Scottish Executive, 2002) explained that EPs assess needs, using a range of methods and approaches. Psychological assessment techniques need to be sensitive to the social and emotional development of children, their cultural and linguistic backgrounds and comply with the Equality Act (2010), Disability Discrimination Act (1995) and Special Educational Needs and Disability Act (2001). The profile of special needs in the EYFS has risen as a consequence of the Special Educational Needs and Disability Code of Practice: 0–25 years (SENDCoP) (Department for Education [DfE], Department of Health [DH], 2014), placing an emphasis on increased provision in the EYFS (Wolfendale, 2000). DfE, DH (2014) place importance on the work of EPs (through local authorities) to be collaborative, accessible, comprehensive and transparent. At the moment, however, there is no clear guidance in the UK on which assessments EPs must undertake as their fundamental assessments and which are complementary. Annan et al. (2013) outline the importance of utilising problem-solving frameworks to guide EP decision-making and practice. By doing this, EPs are supported in becoming transparent, methodical, analytical and accountable in their work and their thinking.

The aim of psychological assessment is to produce an understanding of what is happening, who is concerned, why there is a problem and what can be done to make a difference (Woods, 2012). EP assessment can serve two purposes: first, to identify needs and second, to inform intervention (Shepard, 1994). To this end, EP assessment involves testing hypotheses (Groth-Marnat, 2009) and planning interventions based on the analysis of information gathered, with the key to effective assessment being to match the strategy for gathering information to the questions being asked (Boyle & Fisher, 2007). Reliable and valid psychological assessment is crucial to the appropriate provision of special services (Shepard, 1994).

Rees, Farrell and Rees (2003) highlighted that there is considerable variation in the assessment and intervention practices of individual EPs. Similarly, research by Woods and Farrell (2006) using a questionnaire survey of 142 EPs in England and Wales highlighted their approaches to assess-

ment of children with learning and behavioural problems. They were asked about the frequency with which they used a variety of approaches to assessment and their usefulness, including observations, standardised tests, criterion-referenced approaches and DA. The findings revealed that partial psychometric assessments of ability feature most prominently in EP assessments of children with learning difficulties with 46 per cent of EPs using them. Approaches based on DA were not used frequently, as only 11 per cent of EPs used DA. DA was ranked in fourteenth position in terms of its usefulness.

Early Years' Assessment Approaches

Standardised Assessment

Standardised assessments are designed to identify strengths and difficulties (Boyle & Fisher, 2007) by providing information about how a child is developing in relation to a larger group of children of the same chronological age (Losardo & Notari Syverson, 2011). Kelly-Vance, Needelman, Troia and Ryalls (1999) highlight that standardised tests require the use of standardised procedures. These include issues such as the use of an unfamiliar environment and examiner, instructions regarding how to complete tasks, and a question and answer format with which the child may have minimal experience or ability (Macy, State, Bagnato, Lehman & Salaway, 2008). For purposes of standardisation, however, examiners cannot deviate from the administration procedures dictated in the test manual (Groth-Marnat, 2009). Waters and Stringer (1997) stated that although standardised tests are used in determining eligibility, they were not developed to define intervention needs.

Alfonso and Flanagan (1999) proposed that difficulties arise when using standardised assessment with younger children because such tests do not match the developmental characteristics of pre-school children. Thus, they cannot accommodate the potentially differing needs of children with difficulties (Macy et al., 2008). Children in the EYs with communication or physical impairments may not be sufficiently assessed for other strengths they possess; therefore, comprehensive information may be obtained about the child (Kelly-Vance et al., 1999). Bagnato and Neisworth (1994) highlighted in a survey of 186 American psychologists working with the EYs age group that 43 per cent of the time standardised assessment failed to be an acceptable tool and recommended play-based assessment as an alternative. Due to the proposed limitations of standardised tests (Groth-Marnat, 2009), the context of play-based assessment has been suggested as a viable setting for collecting assessment data for children (Kelly-Vance & Ryalls, 2005) in the EYFS.

Play-based Assessment

Play is one way that children learn new skills, knowledge, adapt to their environment, solve problems, build their sense

of identity (Wood & Attfield, 1996) and it is central to the EYFS. Losardo and Notari Syverson (2011) stress that play-based assessment is particularly useful for assessing functional behaviour of a young child who cannot perform in a formal testing situation. Wolfendale (2000) shared that the most comprehensive assessment information can be gained through observation and participation. Their model of play-based assessment combines observation and adult participation to help determine strengths and weaknesses. As an assessment tool, it is accessible to both parents and professionals in a range of contexts (Losardo & Notari Syverson, 2011). According to Whitebread and Coltman (2015), during play, children set their own level of challenge, which is developmentally appropriate, more so than tasks set by adults. Furthermore, play is often initiated by children themselves, making them in control of interactions in a learning, teaching or assessment setting. Kernan (2007) highlighted that the context of play allows a comprehensive and integrated view of a child's interactions with people and objects in a meaningful environment. Additionally, the unstructured nature allows room for expansion of the assessment, incorporating the child's ability to organise emotions, sensations and self-regulatory behaviours. Capabilities such as exploration diversity, persistence and engagement can be identified, which may not be recognised in a standardised assessment (Losardo & Notari Syverson, 2011).

Segal and Webber (1996) identified two observations of play: structured and non-structured. In non-structured play, observations allow the assessment of a child in spontaneous play with an adult without any restrictions in the environment, resources or timing. Structured play observations allow the assessment of play behaviours, involving the use of checklists or rating scales in predefined procedural directions that specify the environment, resources and strategies to use for eliciting behaviours. The authors stress that this requires planning, time, the lack of a standardised procedure, good knowledge of child development and what the targeted behaviour/focus of the observation is. Practitioners must be able to observe and record behaviours across multiple domains of development (Losardo & Notari Syverson, 2011) such as cognitive, affective and psycho-motor (Drifte, 2002). It is the observer's responsibility to develop tailored activities and data collection tools. A shared understanding needs to be created before the assessment regarding the observational criteria (Segal & Webber, 1996).

Dynamic Assessment

The EYFS places emphasis on the concept of using a play-based approach, which has led to an improved focus on the needs, interests and developmental stages of children, enabling an active approach to guiding and supporting their development (Robertson, 2009). The EYFS currently includes a requirement for the areas of learning to be delivered

through planned, purposeful play with a balance of adult-led and child-initiated activities (Tickell, 2011). DA represents an approach that seeks to overcome the difficulties associated with standardised testing (Vulić, Altaras-Dimitrijević & Jolić-Marjanović, 2014). DA has been argued to represent an opportunity for EPs to utilise a play-based approach, which is seen to have psychological validity and particular relevance to EYs developmental stage (Hill, 2015). The EYFS has an element of DA embedded within it, as there is a requirement for practitioners to observe the things that children can do and help children progress to their next level of development (Tickell, 2011).

Seminal theorists and researchers in the field of DA include:

- Vygotsky (1978, as cited in Pugh & Duffy, 2009) (sociocultural approach and Zone of Proximal Development (ZPD));
- Feuerstein (R. Feuerstein, Rand & Hoffman, 1979; R. Feuerstein, Rand, Jensen, Kaniel & Tzuriel, 1987) (Learning Potential Assessment Device (LPAD)); R. Feuerstein and Feuerstein (1999) (Mediated Learning Experience (MLE));
- Waters and Stringer (1997) (The Bunny Bag);
- Tzuriel (Haywood & Tzuriel, 1992; Tzuriel, 2000; Tzuriel & Weiss, 1998); and
- Lidz (2000) (Application of Cognitive Functions Scale (ACFS)).

According to Poehner (2005), DA requires the examiner to mediate the examinee's performance during the assessment itself through the use of prompts, hints, and questions. In this way, the focus of the assessment shifts from examinees' success or failure at completing a given task to an analysis of the amount and kinds of assistance they required as well as the extent to which they reciprocated the examiner's interactive moves.

Glaspey and Stoel-Gammon (2007) note that DA evaluates a child's skills when given support, whereas standardised assessments evaluate skills without support. Yeomans (2008) considers DA to examine the process rather than the product of learning by identifying strengths and weaknesses in the cognitive functions of the child. According to Lidz (1991, 2000), DA links the results from assessment to the child's learning in the classroom.

Deutsch and Reynolds (2000) explored EPs' use of DA in the UK. They investigated to what extent 119 EPs used DA in their practice and what they saw as the advantages and limitations. The survey highlighted that 74 per cent of the 88 responses received suggest awareness of DA as a model of cognitive assessment and positive attitudes but with low

levels of implementation, attributed to insufficient training in DA, and to lack of time due to other assessment priorities. The study by Vulić et al. (2014) wanted to determine whether additional data collected using DA actually contributes usefulness of test reports by school psychologists from the point of view of teachers. Two groups of teachers assessed the usefulness of psychological reports prepared on the basis of static and dynamic evaluation of the capability of the three children. The results indicate a significant positive effect on the dynamic evaluation of the teaching assessment, especially when it comes to how the child accepts and uses the incentives. DA had a significant positive effect on informing reports, particularly regarding the child's reaction to adult scaffolding. These findings provide empirical confirmation of the supposed benefits of DA, encouraging its use.

According to Poehner and Lantolf (2005), summative DA involves a pre- and post-test procedure and reports on the outcomes of learning, whereas formative DA is intended to feed back into the teaching and learning process and is a guide for future learning. DA has been criticised on the grounds that it is time-consuming and requires a high level of expertise and experience. It takes a long time to administer (Guthke, Beckmann & Dobat, 1997) due to the interactive nature of the procedure. Furthermore, according to Losardo and Notari Syverson (2011), practitioners must engage in ongoing hypothesis formulation and decision-making process, be aware of child development and balance observation with the recording.

Shannon and Posada (2007) highlight that a debate has emerged surrounding the use of psychometric assessment in the EYs, proposing that alternative forms of assessment such as DA may be considered as being more appropriate. The authors provide exploratory research evidence of current models of service delivery and EP attitudes. The main purpose of their research was to obtain a snapshot of the current role of the EP and models of service delivery in relation to EYs. Data was gathered from 32 EPs, who completed questionnaires. Further interviews were conducted with three EPs. The authors found that there was an increasing emphasis on EYs work within the EP services. However, there was dissatisfaction with current working models related to high levels of individual casework.

Summary

Under the new SEN code of practice (DfE, DH, 2014), EPs are now more likely to receive referrals concerning children in EYs settings. DA represents an opportunity for EPs (Hill, 2015) to utilise a play-based approach for assessing the functional behaviour of young children who cannot perform in formal testing situations (Tzurriel, 2000). Haywood and Tzurriel (1992) claim that DA focuses on the learning process of young children and is of value in determining factors that may impede learning and informing intervention. DA is ap-

propriate for the EYs because it can be delivered in the context of play and is particularly useful for assessing functional behaviour of a young child who cannot perform in a formal testing situation. EPs need to be aware of suitable approaches to assessment of need when standardised assessment is not an option, ultimately contributing to the assess-plan-do-review cycle as stated in the SENDCoP (DfE, DH, 2014).

There is a lack of research showing EPs' use of DA practices in the EYs. Therefore, the purpose of this review is to evaluate the evidence for the usefulness of DA in the EYs phase and, in turn, to support EPs' development of such approaches within their professional practice.

Systematic Literature Review Question

What is the usefulness of DA for practitioners in the EYFS?

Method

Drawing on systematic literature review methodology and using study quality assessment frameworks, the paper explores EPs' use of DA with children in the EYFS.

Ethical Considerations

The review went through a process of ethical clearance at an English University confirming that the research only involved secondary data synthesis. The study only utilised studies in the public domain.

Data Sources and Literature Search Strategy

Electronic databases (University of Manchester; Psych info, ERIC, Web of Science ASSIA and Google Scholar) were searched for journal articles. Web searching was also conducted using Google and Google Scholar. General search terms, aimed to find all available published research relevant to the literature review question, were: DA AND early years (OR educational psychologists OR school psychologists OR educational psychology OR kindergarten OR preschool) AND (usefulness).

Literature searches were completed between November 2015 and January 2016. Reference harvesting of included papers was also used to extend the scope of the search. Pertinent journal editions and article reference lists were manually searched. Within the search period, a manual search of one of the leading psychology journals in the UK (Educational Psychology in Practice) was carried out. The review report adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher, Liberati, Tetzlaff, Altman & PRISMA Group, 2009).

Inclusion Criteria

Studies were screened against the following inclusion criteria:

- The study is accessible in English via abstract.
- The study published in any country.
- The study is conducted with preschool children in the EYFS (age 0 to 5) or equivalent.
- The study is primary empirical research which uses either/or qualitative and quantitative research methods.
- The study involves the use of DA and its findings.
- Subjected to peer review in an academic journal.
- The study has relevance to implications for practice in the EYs.

The aim of the enquiry was to look at the utility of research, therefore, having a closer relevance to practice. The inclusion criteria were distinctive and wide-ranging in order to capture any DA activity by EPs.

Details of Included and Excluded Studies

Electronic searches of the title and abstract generated 757 hits in total across the databases. After strict application of the inclusion criteria, a further 751 studies were excluded leaving six studies, all of which were quantitative investigations. After translation of the study by Vulić et al. (2014), it highlighted that children in the sample were aged between 6:2 and 7:0 and attended preschool education in kindergarten, which meant that the study did not meet the inclusion criteria and had to be excluded.

Study Quality Assessment

To enhance the robustness of the review, a framework for the evaluation of methodological quality was applied. As the studies considered in this SLR were investigative quantitative studies, a purpose-designed University of Manchester framework for quantitative investigative studies was used; the framework draws on relevant criteria from several methodological sources (Choi, 1998; Cohen, Manion & Morrison, 2007; Genaidy et al., 2007; Wallace & Wray, 2011). The framework collected both descriptive and evaluative information about each included study. It consists of a checklist of fifteen study features falling into the category of data gathering, data analysis and data interpretation. Each research study was scored either 1 or 0 for each of the framework criteria, yielding a maximum possible study quality score of 15. Studies scoring between 11 and 15 were considered to be of high quality, those scoring between 6 and 10 medium quality and 0 and 5 low quality (Gough, 2007). Post-discussion inter-rater reliability stood at 0.77 and 0.8.

Data Extraction and Synthesis

For all included studies, key data were extracted and summarised. Key data included:

- the aim of the study
- the study design and content
- the sample size
- demographic sample characteristics
- pre- and post-intervention measures
- outcomes
- ethical considerations
- research findings and
- implications considered.

Results

Appraisal of Studies

Quality assessment of the reported five studies showed that two of the five studies were of high quality and three studies were of medium quality. The table shows the study quality score for each study included in the review along with a brief description of their main characteristics.

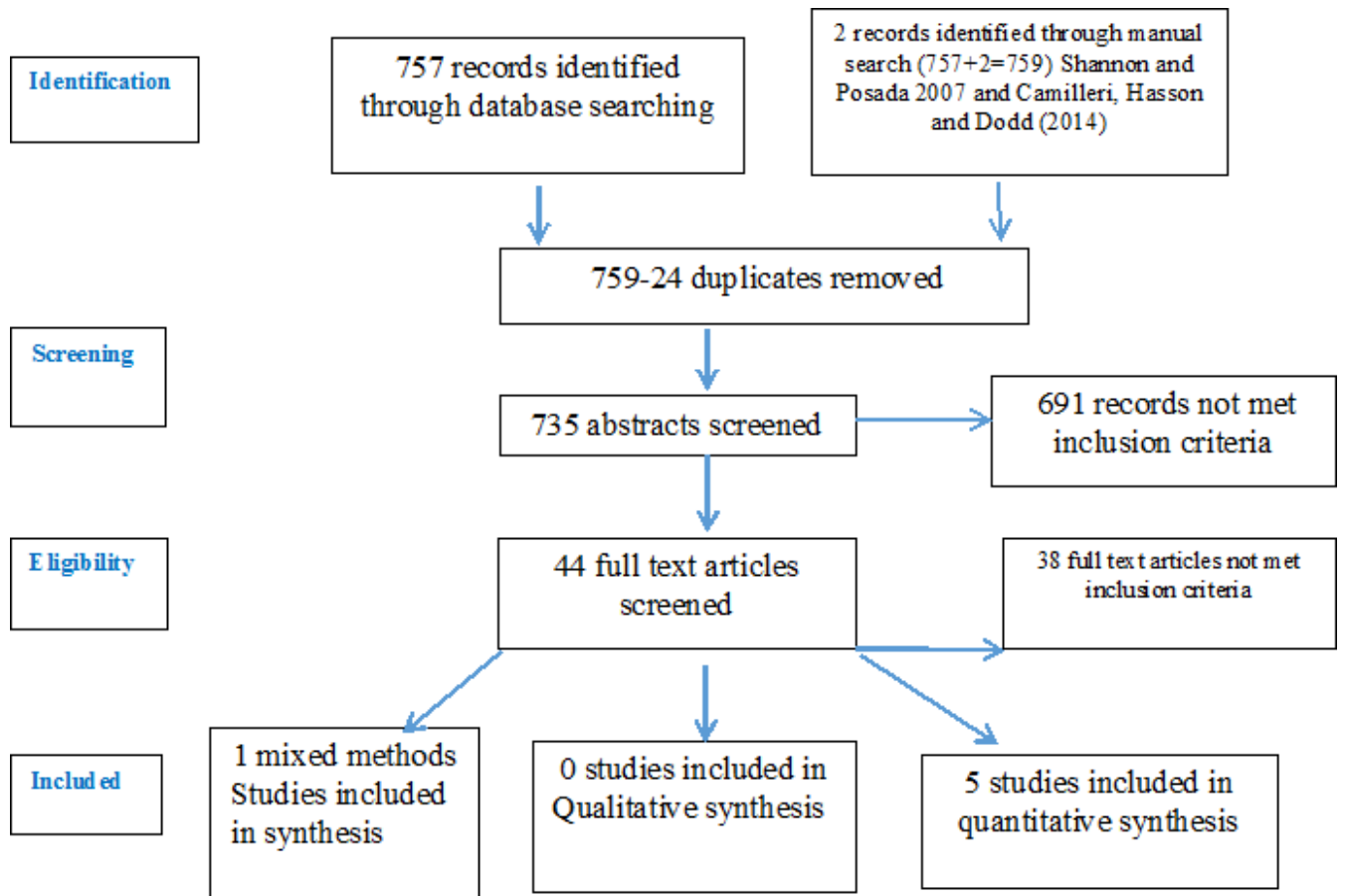


Figure 1. PRISMA flowchart illustrates the number of articles at each stage of the review (Moher, Liberati, Tetzlaff, Altman & PRISMA Group, 2009).

Table 1

Illustrates the main characteristics and findings of the studies included in the review

Author, type of practitioner and study quality score	Study design and sample	Aim of the study	Methodology employed and measures used	Findings of the study	Researchers' conclusions
Wiedl, Mata, Waldorf and Calero (2014) 10/15 <i>Researchers at the University of Granada, Spain.</i>	226 pre-schoolers living in either Germany or Spain	Investigation of DA reducing the risk of biased assessment of children with an immigrant background.	Pre- and post-test using the Application of Cognitive Functions Scale (ACFS)	Revealed differences between native and migrant children in levels ($P < 0.5$; $\eta^2 .02-.12$) but not in progression of performance, except for auditory memory ($\eta^2 .06$).	ACFS can be used as a measure of cognitive functioning that is more independent of the migratory status of pre-schoolers.
Thatcher Kantor, Wagner, Torgesen and Rashotte (2011) 10/15 <i>Researchers at the Florida State University.</i>	123 preschool children. South Eastern city — USA.	Comparison of two forms of DA and standard assessment of preschool children's phonological awareness.	Random assignment of participants to 1 of 3 test administration groups. Assessment based on scaffolding, on instruction and traditional assessment of phonological awareness.	Results indicate that phonological awareness of preschool children can be reliably and validly assessed using standard assessment procedures ($p < .05$). DA does not improve the reliability or validity of phonological awareness assessments when preschool children are given tasks that they can perform using standard administration procedures.	The use of DA to speed up the response to intervention process might work better in first grade than it does in preschool.
Day, Engelhardt, Maxwell and Bolig (1997) 11/15 <i>Researchers at the University of Notre Dame — Department of Psychology.</i>	84 children aged between 4 and 5, from 3 USA Midwestern cities.	Investigating whether dynamic measures improve the predictive use of static measures on both fluid and crystallised ability tasks in preschool children. Dynamic measures of learning and transfer are relatively consistent across different task domains.	Participants took pre-tests, training and post-tests. Subtests from the Wechsler Intelligence Scale for Children (WISC) — block design and similarities	Training produced statistically significant pre-post-test improvement in performance (similarities $p < .001$, block design $p < .001$). DA of ability contributed predictive information about later independent post-test performance.	Authors question whether learning ease is stable across time.

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Camilleri and Law (2014) 10/15 <i>Researchers interested in speech and language development</i>	40 pre-school children from the UK. Speech and language was a cause for concern.	DA enhances the predictive capacity of a static measure of receptive vocabulary in pre-school children.	Pre-test phase, dynamic phase and post-test phase. British Picture Vocabulary Scale (BPVS) and British Ability Scales (BAS)	Significant predictive capacity of static measure ($p < .05$) enhanced by DA element ($p < .01$).	DA can add clarity to the decision-making of speech and language pathologists. Valid for practitioners to discuss with teachers.
Coventry, Byrne, Olson, Corley and Samuelsson (2011) 12/15 <i>Researchers interested in early reading development and behaviour genetics.</i>	1,988 preschool children. 992 MZ twins, 996 DZ twins from USA, Australia, Sweden and Norway.	The genetic and environmental overlap between static and dynamic measures of preschool phonological awareness and their relation to preschool letter knowledge and kindergarten reading.	Longitudinal study Phonological awareness tasks	Unable to distinguish between static and dynamic preschool assessment of phonological awareness in terms of underlying genetics (non-significant loading of .01 Eta ² values for LK, static phonological awareness and dynamic phonological awareness in predicting reading were .28, .06 and 0.1 respectively in predicting reading). DA adds minimally to variance explained in later reading (1%).	There is little advantage in electing to use DA. However, DA may still serve as a valuable technique for children from disadvantaged backgrounds.

Study Characteristics

Selected studies were published within the last twenty years. Of the five studies, one was conducted in the UK, three in the USA, one in the USA as well as Australia, Sweden and Norway. One study was a randomised control trial and one was a longitudinal study. All studies used a pre–post study design. DA in the studies was conducted by practitioners other than EPs such as speech and language therapists.

Sample Characteristics

Sample sizes ranged between 40 and 1,988 preschool children. Children were aged under five years attending an educational setting.

Use of Dynamic Assessment

All the studies used some form of DA with participants and looked at its usefulness. Wiedl et al. (2014) examined whether DA reduced bias; Thatcher Kantor et al. (2011) compared two forms of DA; Day et al. (1997) and Camilleri and Law (2014) examined whether DA enhanced the predictive capacity of a static measure used in a fixed way. (A static measure is fixed and can be viewed as directly contrasting to a dynamic measure.) Lastly, the study by Coventry et al. (2011) examined the overlap between static and DA measures.

Measures Used and Analysis

The study by Wiedl et al. (2014) used the ACFS in a pre- and post-test format; Thatcher Kantor et al. (2011) used DA based on a pre- and post-test format using scaffolding, instruction and traditional assessment of phonological awareness; Coventry et al. (2011) used dynamic phonological awareness tasks based on four stages of instruction with built-in assessment in a pre- and post-test format; Day et al. (1997) used subtests from the Wechsler Intelligence Scale for Children (WISC), block design and similarities in a dynamic pre- and post-test format; and finally Camilleri and Law (2014) also used DA in a pre- and post-test format along with the British Picture Vocabulary Scale (BPVS) used as a baseline measure and the British Ability Scales (BAS) to represent non-verbal cognitive ability.

Findings

As stated in DfE, DH, (2014), children's needs are generally thought of in the following four broad areas of need and support:

- communication and interaction
- cognition and learning
- social, emotional and mental health and

- sensory and/or physical needs.

These also reflect the areas highlighted in the EYFS profile (Nutbrown & Carter, 2009). However, the emphasis of DA in the studies focused on either language or cognition. All of the studies used adaptations of cognitive assessment, and there is no evidence of any play-based assessment being used with young children in the EYFS.

In the study by Wiedl et al. (2014), DA showed differences between children in levels of cognition; in the study by Thatcher Kantor et al. (2011), DA did not appear to improve reliability or validity of phonological awareness assessments; in the study by Day et al. (1997), DA of ability contributed to predictive information; in the study by Camilleri and Law (2014), DA enhanced the value of the information provided and proved to be valid for practitioner discussion with teachers; in the study by Coventry et al. (2011), DA was unable to distinguish between static and dynamic preschool assessment. Evidence for the use of DA in the EYs is limited but somewhat promising. When analysing the papers, it became apparent that the authors were using DA tools that are typically associated with EP practice. In all of the studies selected, the authors highlighted the relevance to implications for practice in the EYs. The evidence base is looking mainly at the areas of cognition and language. However, it is limited and not entirely positive; therefore, firm conclusions cannot be drawn regarding its usefulness.

Dynamic Assessment for Language Assessment

Camilleri and Law (2014) — DA of Word-learning Skills — UK

The aim of this study was to determine whether DA has the potential to enhance the predictive capacity of a static measure of receptive vocabulary in pre-school children. In this study, DA was used to enhance assessment of pre-school children with primary language impairment. Forty preschool age children were randomly selected from among children referred to an inner-city speech–language pathology service. The children were 41 to 60 months when first assessed using a combination of static and dynamic measures. The authors used the static British Picture Vocabulary Scale (BPVS), a DA of word learning potential and an assessment of non-verbal cognitive ability using the British Ability Scale (BAS). Thirty-seven children were followed up after a six-month waiting period and were reassessed using the BPVS. Results indicated that although the predictive capacity of the BPVS was found to be substantial, DA increased this significantly, especially for children with static scores below the 25th centile. The assessors offered graduated assistance and support. Children were given three levels of assistance (from least to most assistive) towards identifying the target item, from independent identification to verbal feedback regarding the target word. It is concluded that DA of word learning

has the potential to add value to the static assessment of children with low language skills, to predict subsequent receptive vocabulary skills and to increase the chance of identifying children in need of support and providing early intervention. Furthermore, it has been described as a brief intervention which has the effect of contributing to a diagnosis.

It is worth highlighting that the six-month lag between pre- and post-test, the child's performance at time two may have been influenced by their experience at time one, both of BPVS and DA component of the assessment. The extent to which the activities incorporated in the DA component of the assessment have a direct influence on children's growth in receptive vocabulary would need to be explored by carrying out a separate controlled study.

Coventry, Byrne, Olson, Corley, and Samuelsson (2011) — Dynamic and Static Assessment of Phonological Awareness — USA, Australia, Sweden and Norway

The aim of this study was to examine the genetic and environmental overlap between static and DA measures of preschool phonological awareness and their relation to preschool letter knowledge and kindergarten reading using 1,988 monozygotic and dizygotic twin children. A total of five static phonological awareness tasks were employed followed by four sessions of dynamic phonological awareness assessment. Each session consisted of four stages of instruction followed by a built-in assessment. Results indicated that when DA of phonological awareness is used in preschool to predict kindergarten reading, it adds variance to explain later reading, but the addition is small at one per cent. Therefore, the authors conclude that DA of phonological awareness in pre-schoolers offers little advantage over static forms. However, they acknowledge its potential in cases of preschool educational disadvantage. More generality of the conclusions of this study and other types of phonological awareness and its assessment is needed

Thatcher Kantor, Wagner, Torgesen, and Rashotte (2011) — Comparison of Two Forms of DA — USA

The aim of this study was to compare two forms of DA and standard assessment of preschool children's phonological awareness. One hundred and twenty-three preschool children were compared on two forms of DA. One based on scaffolding, which in education refers to a variety of instructional techniques used to move students progressively toward stronger understanding and, ultimately, greater independence in the learning process (van de Pol, Volman & Beishuizen, 2010), and the other based on instruction and traditional assessment of phonological awareness. The authors wanted to determine whether either form of DA improved the reliability and validity of assessments of phonological awareness relative to standard static administration. The authors found no advantage in reliability or validity for either DA condition

relative to the standard static assessment condition. DA does not appear to improve the reliability or validity of phonological awareness assessments when preschool children are given tasks that they can perform using standard administration procedures.

There are issues limiting the generalisability of the results. The children were from middle and higher socioeconomic groups. The short duration of the study may not have allowed time for group differences to emerge. Lastly, the use of multiple test administrations in a short period may limit the generalisability to instances when using the tasks at a single time.

Dynamic Assessment for Cognitive Assessment

Day, Engelhardt, Maxwell, and Bolig (1997) — Comparison of Static and DA Procedures — USA

The aim of this study was to see whether DA might improve the predictive use of static measures on both fluid and crystallised ability tasks in a group of preschool children. Eighty-four preschool children were given pre-tests and post-tests on block design and similarities tasks to assess relationships between pre-training skills, ease of learning and later post-test performance in both spatial (block design) and verbal (similarities) task domains. The findings are consistent with previous research on the instruction of cognitive skills in that training produced significant pre- to post-test improvement in performance. DA of ability contributed predictive information about later independent post-test performance.

The results must be interpreted with caution because of the small sample size. The question remains to be answered: is learning ease (in this case, the authors associate the term learning ease with ongoing learning and transfer of learning over time) stable across time? The authors do not provide clarification as to how DA relates to school learning.

Wiedl, Mata, Waldorf, and Calero (2014) — Dynamic testing using the ACFS — Germany and Spain

The aim of the study was to show the reduced risk of biased assessment of children with an immigrant background. This effect was shown in two hundred and twenty-six preschool children using the ACFS, which is a dynamic test based on the test–mediation–test format. Dynamic testing reduced the risk of biased assessment of children with an immigrant background. Dynamic testing using the ACFS showed differences in native and migrant levels of performance but not progression. It is considered a useful test for assessing children with a migratory background. The study lacked a control group, and therefore whether the progress of performance observed should be attributed to specific intervention or mere practice remains to be answered.

Summary of Findings

Out of the five studies, three supported the use of DA and two did not. Three of the studies used DA for literacy assessment, looking at word learning, reading predictability and phonological awareness. Two of the studies compared DA and static measures; the study by Thatcher Kantor et al. (2011) compared two forms of DA. DA is good for adding value to static assessments of cognitive and linguistic functioning, reduces the risk of biased assessment and contributes predictive information about later independence. However, DA of phonological awareness in two of the studies offered little advantage over static forms of assessment.

Discussion

In England, EYs education services and the children who attend them are increasingly the subjects of assessment. While these assessments offer a number of benefits in terms of tracking child development, they also impose restrictions to practice, limits to understandings of children and fail to engage with the wider social context of the child (Campbell-Barr, Lavelle & Wickett, 2012). Therefore, we argue the need to look at alternative modes of assessment to enhance the data already being collected. There is scope to explore the use of more qualitative methods of assessment in the EYs.

Only a small number of studies have explored the usefulness of DA in the EYs, and none focuses upon the work of EPs. A total of five studies met the inclusion criteria and examined the use of DA in the EYs. Despite there being an emphasis on EYs work in the EP services (Shannon & Posada, 2007), it would seem there is still a lack of emphasis on DA. Why is it that despite recommending play-based assessment as an alternative approach (Bagnato & Neisworth, 1994) it did not feature as part of this review?

DA fulfils the British Psychological Society, Division of Educational and Child Psychology (1999) criteria for assessment by EPs as it is well suited to teaching and links assessment to intervention (Hill, 2015). The studies in this review used DA in the areas of language and cognition. Both language and cognition have importance for EPs when assessing children in the EYFS. They form part of a detailed and comprehensive understanding of the child's strengths and needs. The Tickell Review (2011) acknowledged the importance of language and communication and cognition as vital skills that contribute to children's success in school. The context in which children learn in the EYs is critical for the transition into the education system and inclusion (Hill, 2015). Furthermore, Hill (2015) highlights that information from DA can help EPs understand and estimate the language and cognitive abilities and predict how a child will function in a school context. This knowledge helps to generate suitable recommendations and interventions for teachers, parents and other professionals and support the crucial transition process

from the EYFS into primary school.

To the best of the author's knowledge, no articles have been published since the completion of the current review that would have been likely to have met the inclusion criteria for the current review.

Limitations of the Review

Although the evidence from the current review is generally supportive of DA, the studies included in the review have significant methodological limitations such as small sample sizes; lack of control groups; short duration of studies, generalisability and lack of long-term follow-up. Furthermore, the present review was limited to published studies subjected to peer review in an academic journal. Therefore, there may have been a number of noteworthy studies that have been omitted from the review, such as book chapters, masters-level dissertations and doctoral theses. Moreover, the potential expansion of search terms particularly related to the term "usefulness" could have been considered. The quantitative investigative studies were evaluated for methodological quality using the framework developed by the researchers at the university. While some of the small-scale study research articles scored highly on methodological quality, this should be considered objectively against the fact that the RCT design is commonly considered to be the "gold standard" (Bickman & Reich, 2009) in research quality terms. This potentially raises some questions about the criteria used and whether these should have been weighted differently to take more account of the research design.

Conclusions and Recommendations for Future Research

This review has not only highlighted a limited evidence base but a mixed evidence base. In addition to the need for more rigorous research, there is also a need for research that seeks to address gaps. As encouraged by the findings from the Vulić et al. (2014) study, DA can be used in assessing school readiness and urge school psychologists to regularly inform teachers of their observations from both static and dynamic cognitive assessment. What is disappointing yet significant is that none of the studies was conducted by EPs or used play-based assessment procedures. It would be useful to investigate EPs' use of DA in the EYFS.

Practitioners need to understand the different ways in which children learn in order to provide effective support children progress to their next level of development (Tickell, 2011). Findings from this review can be used by EPs working in the early years to consider the type of assessments they use with young children as DA may be considered as an alternative approach to assessing younger children when standardised assessment is not an option or even to provide an extension to standardised assessment, allowing the link between assessment and intervention. Furthermore, this review suggests the possibility for EPs to support early

years' practitioners to carry out action research in the settings by using DA. This approach permits EPs and practitioners to work collaboratively and systemically to investigate *their* own practice and to discover what works for *young children* and which can result in a high degree of professional empowerment all round.

Special educational provision for a child should be based on an understanding of their particular strengths and needs and should seek to address them, using evidence-based interventions to overcome barriers to learning and participation (DfE, DH, 2014). Furthermore, reviewing the effectiveness of interventions in enabling children to make progress can itself be part of the assessment of need, informing the next steps to be taken as part of a graduated approach to support. The focus on next steps in teaching and learning focuses practitioners on the child's "zone of proximal development" (ZPD), which was described by Vygotsky as the current or actual level of development of the learner in relation to the next level achievable through the use of mediation, environmental tools and adult or peer facilitation (Shabani, Khatib & Ebadi, 2010). Thus, it was argued by Vygotsky (1978, as cited in Pugh & Duffy, 2009) that "assessment does not end with a description of a pupil's present state of knowing but rather begins there" (p. 85).

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