

## **An Analysis of the Impact of Forest School Provision on Early Years Foundation Stage Outcomes Using CASEY**

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### **Introduction**

In 2016 Cambridgeshire County Council's Early Years and Childcare Team formed a multi-agency steering group to promote the further development of Forest School provision in the county. This initiative was to enable a continuation of the work already done by the team, and in particular by the lead advisor for Forest School, Heather Jebb, and her predecessor, in the face of cuts to public spending. The steering group includes head teachers from primary schools across the county, teachers, early years and childcare practitioners, forest school leaders, local authority employees and Sara Knight, co-author of this paper and a well-known expert and author about Forest School. In the first year we undertook a series of consultation events with schools and settings. From this we formed the 'Cambridgeshire Forest School vision' which is that all children in early years and primary education settings should have access to Forest School provision. The group meets on a termly basis and has set up working sub-groups to look at specific strands of work, one of which is the research sub-group, committed to investigating the validity of our intuitions, namely that this vision will be of benefit to the children and future of Cambridgeshire.

This paper presents the findings from our initial analysis of such data that we could easily access and with due regard for the ethics of confidentiality. We intend to use this to direct our development of larger studies. We are fortunate to have attracted the interest of Dr Janine Coates and Dr Helena Pimlott-Wilson from Loughborough University to help us with our next steps. Their recent paper (Coates & Pimlott-Wilson, 2018) drew to our attention their work in this area.

To start, we will consider the constituent elements of the paper; what is Forest School, what is CASEY, what is the Early Years Foundation Stage and why are they all useful in this context.

### **Forest School**

Forest School has been delivered in the UK for over twenty years, spreading inexorably since the mid-1990s. The history of the movement is accessible on the website of the Forest School Association (Cree & McCree, 2014). In Knight 2016, I argued that Forest School exemplifies ways of being in and with nature that are essential for the health of

the individual, society and the planet. In the UK, as elsewhere in the developed world, the strains of modern life are having deleterious effects on the health and well-being of many people. Forest School offers benefits that all can access, and at all ages.

The largest group participating in Forest School in the UK is often thought to be the preschool sector, where the roots of Forest School lie. However, it is clear that it is the 4–7-year-olds in primary schools who make up the largest group participating in Forest School sessions (Knight, 2016:3). Forest School is not the only way to get outside but the unique combination of the six principles ensure that it holds unique benefits for participants:

- FS is a long-term process of regular sessions, rather than a one-off or infrequent visits; the cycle of planning, observation, adaptation and review links each session.
- FS takes place in a woodland or natural environment to support the development of a relationship between the learner and the natural world.
- FS uses a range of learner-centred processes to create a community for being, development and learning.
- FS aims to promote the holistic development of all those involved, fostering resilient, confident, independent and creative learners.
- FS offers learners the opportunity to take supported risks appropriate to the environment and to themselves.
- FS is run by qualified Forest School practitioners who continuously maintain and develop their professional practice. (FSA 2012)

The most obvious reasons for providing regular and protracted outdoor learning opportunities are the physical ones. Increased opportunities for fresh air and for vigorous outdoor exercise stimulate increases in bone and muscle development. More physical reasons to establish habits of going outside include the rise across the wealthier nations of childhood obesity. Figures from the Health Survey for England (HSE) for 2013 revealed that among children aged 2–15, 16 per cent of boys and 15 per cent of girls were classed as obese, and 14 per cent of both boys and girls were classed as overweight. Overall, 30 per cent of boys and 29 per cent of girls were classed as either overweight or obese (Boodhna, 2013). Undoubtedly, this is a major national concern as an obese child is at double the risk of becoming an overweight or obese adult.

However, the earliest research outcomes from the beginning of the century (Murray and O'Brien, 2005) showed clear benefits to children in the areas of confidence, social skills,

language and communication, and motivation and concentration. This reflects findings in the Northern European countries where nature preschools are more common, although even here there is a need for more research evidence (Lysklett, 2017: 250). In these countries children do not start school education at such a young age as in England, the emphasis being on developing strong social and emotional foundations before the pressures of formal education start.

The regularity of Forest School sessions is crucial. Establishing habits of exercise and being in the fresh air are achieved by *being* active and *being* outside on a regular basis. As I have stated before (Knight, 2013: 19), neural pathways are established in the brain in response to activity and the myelination of those pathways – the process that makes that activity a part of the child’s way of being – occurs in response to repetitions of that activity. Being outside regularly and being free to stretch and grow makes a child *want* to be outside regularly and be free to stretch and grow. It is much easier to create these healthy ways of being while the brain is young and plastic.

Risk taking is an important element of Forest School. In 2003, Jennie Lindon warned of the dangers from over-protection in the preschool years (Lindon, 2003: 10), and suggested that children need to take age-appropriate risks in order to learn to stay safe. Gill (2007) followed this up by focusing on the same issues around the needs of school-aged children. He considered the demise of adventure playgrounds in inner cities during the 1970s and 1980s, and asked us to consider what this says about our attitudes to children. Are they ‘fragile, incompetent, accident-prone, unable to deal with adversity and incapable of learning how to look after themselves’ (ibid.: 38)? In Forest School, the attitude is one of mutual trust and shared learning, which is why tool use and fire lighting are common activities, regardless of the ages of the children.

### Casey

CASEY is a shared computer system which helps early years settings in Cambridgeshire to manage their information on children’s progress. The Early Years Service has developed the system with Sentinel Partners Limited, and with input from providers, to draw together information on children’s development and progress, and facilitate information sharing between settings and the local authority. Whilst it relates to the Early Years Foundation Stage, its scope is wider and it is offered to private, voluntary and independent (PVI) settings as well as local authority maintained early years settings in schools. A secure online portal is pre-populated with details of settings and funded children. Other features enable non-funded children to be added, and a specially designed dashboard automatically summarises children’s data. Reports in the system enable the progress of key target groups to be measured against their peers. There is **no charge** for access for one user per setting.

The CASEY screens provide settings with the ability to maintain details for all the children at their setting (referred to as the Child register), as well as enter specific information for each child. Managers / owners of more than one setting can track data for each specific setting within a single view. Assessment schedules can be set up for all children, with tabs for both Early Years Foundation Stage (EYFS) and Every Child a Talker (ECaT) options. Children are scored according to whether their level of development is 'emerging' (the child is just developing in this area), developing (the expected stage of development at this age) and secure (exceeds the expectation for this age). This differs in nomenclature slightly from the EYFS, see below. To ensure data security there is a dual factor authentication system as well as the standard password protection. Parents and settings also agree the level at which their child's data can be shared. There are three options:

1. Detail anonymised: Data for this child, such as level of development, and progress, will be included in data visible to the local authority. However, the child's name and address will be suppressed.
2. Setting level: Individual data for this child will not be shared with the local authority. However, it will be included in aggregate data for the setting.
3. Full: Data for this child may be shared in full with the local authority in support of its statutory duties. The child's name and address will be visible alongside their assessments, level of development and progress.

This conforms to the County policy: Cambridgeshire Information Sharing Framework ([http://www.cambridgeshire.gov.uk/info/20044/data\\_protection\\_and\\_foi/148/information\\_and\\_data\\_sharing/3](http://www.cambridgeshire.gov.uk/info/20044/data_protection_and_foi/148/information_and_data_sharing/3))

The data can then be analysed by the settings using a range of attributes and parameters. It can also be used by the County Council, suitably anonymised and with access restricted by the senior team, for research tasks such as described in this paper. More information can be found at <https://www.cambslearntogether.co.uk/early-years/business-support/cambridgeshire-assessment-system-for-early-years-casey/>

Figure 1 is a screen shot of the page where settings can record their EYFS assessments and more, as can be seen. This record then forms part of the data that can be interrogated.

Assessment Due	Forename	Surname	DOB	Age (months)	Gender	Key Worker	Hours	Weeks	FSM	Menu
19/11/2015	Sarah	Smith	11/11/2015	27	Female		18		X	<ul style="list-style-type: none"> <li>Ignore Assessment</li> <li>Complete Assessment</li> <li>Child Overview</li> </ul>
17/12/2017	Martin	Jacobs	19/01/2016	24	Male	Roberta Welch	30			<ul style="list-style-type: none"> <li>Ignore Assessment</li> <li>Complete Assessment</li> <li>Child Overview</li> </ul>

Figure 1. CASEY Page for EYFS Assessment Recording

### Early Years Foundation Stage

All early years settings in England are required to follow the Foundation Stage framework as a condition of their registration with the Government. This includes): maintained schools; non-maintained schools; independent schools (including free schools and academies); all providers on the Early Years Register; and all providers registered with an early years childminder agency (CMA). It provides the standards by which Ofsted (the Office for Standards in Education, Children’s Services and Skills, <https://www.gov.uk/government/organisations/ofsted> ) frame their inspections, and the assessments at the end of the Foundation Stage are used to inform the teachers who will lead them into formal schooling.

The Statutory Framework for the Early Years Foundation Stage 2017 (Department for Education, 2017) identifies seven areas of learning and development that settings must encourage. They state that three areas are crucial building blocks for future learning, namely communication and language; physical development; and personal, social and emotional development (PSED). These broadly match to the ‘dispositions to learning’ identified by Guy Claxton (2013), namely Reciprocity (interdependence, collaboration, empathy and listening, imitation), Reflectiveness (meta-learning, planning, distilling, revising) Resourcefulness (making links, questioning, capitalizing, imagining, reasoning) and Resilience (perseverance, managing distractions, absorption, noticing). These are the skills that make for happy and successful learners at any age.

Settings are required, alongside their continuous assessment and monitoring of the children in their care, to review their progress when the children are between two and three and provide parents and carers with a short written summary of the child’s development in the prime areas. In the final term of the year in which the child reaches the age of five they must complete an EYFS Profile that will provide parents, carers and the Year 1 teachers they will progress to with a snapshot of their readiness for starting their formal school career. Children are scored according to whether their overall level

of development is ‘emerging’ (the child is just developing in this area; this is the same as CASEY), or the child is at the expected stage of development at this age (described by CASEY as developing) or they exceed the expectation for this age (described by CASEY as secure).

### Our Proposed Data Review

With this useful data set available to the Cambridgeshire County Council’s Early Years and Childcare Team, it provides an invaluable resource for the initial investigations reported below. As stated above, the aim was to use this study to direct our development of larger future research projects. We wanted to see if Forest School provision was having an effect on the assessment scores for preschool children in the county. We focused on PSED as previous studies (Knight 2013: 42-49, 118-124) had indicated that the effects were most marked in this area.

Arnold analysed data from settings using CASEY who offered Forest School provision. From a list of 18 settings provided by the team, 13 had used CASEY, and 7 had pre-school children on CASEY in the summer term 2018. These 7 settings provided the data for the analysis, comparing with the county data as a whole.

Pre-school children	Number	Cohort size (estimated)	Percentage
On CASEY	1,335	7,500	18%
Attended Forest School setting	109	7,500 1,335	1.5% of all children 8% of children in CASEY

Figure 2. Chart Showing Numbers of Children in Cohorts

Setting names have been removed from the paper to anonymize the findings. Children’s assessed level of development was compared against the results for the wider sample of children on CASEY who are not accessing Forest School through their setting. The specific areas of the Early Years Foundation Stage analysed were those relating to Personal, Social and Emotional Development (PSED), namely

- Managing Feelings
- Making relationships
- Self-confidence

#### Personal, Social and Emotional Development data:

The chart below shows the initial snapshot of the CASEY data. The highlighted areas indicate significant results for our analysis. Whilst not statistically outstanding, they highlighted for us differences that warranted further analysis. Using a crude numerical equivalent for each sub-stage of development, the sample data suggests children are

around 0.5 of a sub-stage ahead of their peers in Managing Feelings (4.73 to 4.16) and Self-confidence (5.04 to 4.50), and around 0.25 in Making Relationships (4.84 to 4.60). From the overall data profile it is not entirely clear whether these children are developmentally ahead of their peers, or more likely to be secure at their assessed level (which is an interesting finding in itself).

Arnold followed this up by looking at the profile of assessment outcomes across the two groups by each of the three areas; managing feelings, making relationships and self-confidence. The results are shown below.

CASEY data, Summer 2018, children aged 48-60 months at assessment										
Assessed stage of development for Personal, Social and Emotional development specific areas										
		30-50 months				40-60 months				
		Below 30-50	Emerging	Developing	Secure	Emerging	Developing	Secure	above 40-60	Total
Managing feelings	Numbers	Forest School	5	2	8	42	18	15	17	2
	Others		52	119	233	283	288	194	57	0
Managing feelings	Percentages	Forest School	5%	2%	7%	39%	17%	14%	16%	2%
	Others		4%	10%	19%	23%	23%	16%	5%	0%
Making relationships	Numbers	Forest School	4	2	3	46	17	19	16	2
	Others		35	49	159	291	359	264	69	0
Making relationships	Percentages	Forest School	4%	2%	3%	42%	16%	17%	15%	2%
	Others		3%	4%	13%	24%	29%	22%	6%	0%
self-confidence	Numbers	Forest School	3	3	5	36	19	17	24	2
	Others		19	57	220	315	311	218	86	0
self-confidence	Percentages	Forest School	3%	3%	5%	33%	17%	16%	22%	2%
	Others		2%	5%	18%	26%	25%	18%	7%	0%

Figure 3. CASEY data for EYFS PSED Assessments Summer 2018

Below are the three charts for each area of the PSED data tabulated above:

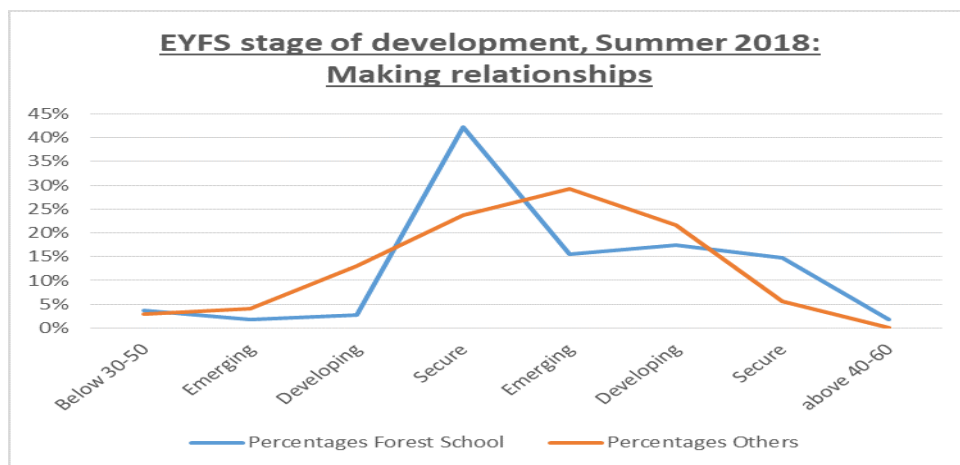


Figure 4. CASEY data for Making Relationships Summer 2018

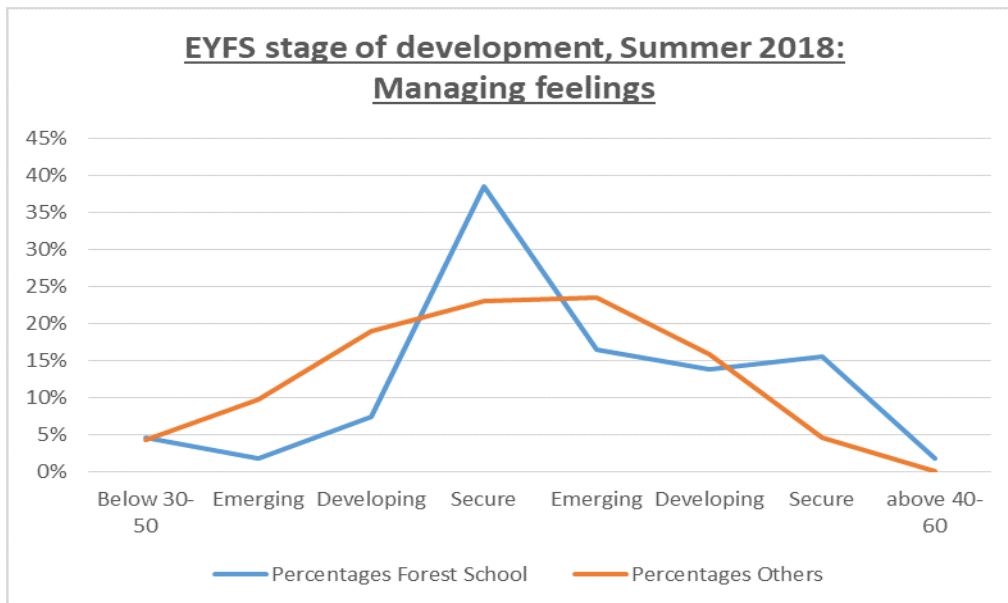


Figure 5. CASEY data for Managing Feelings Summer 2018

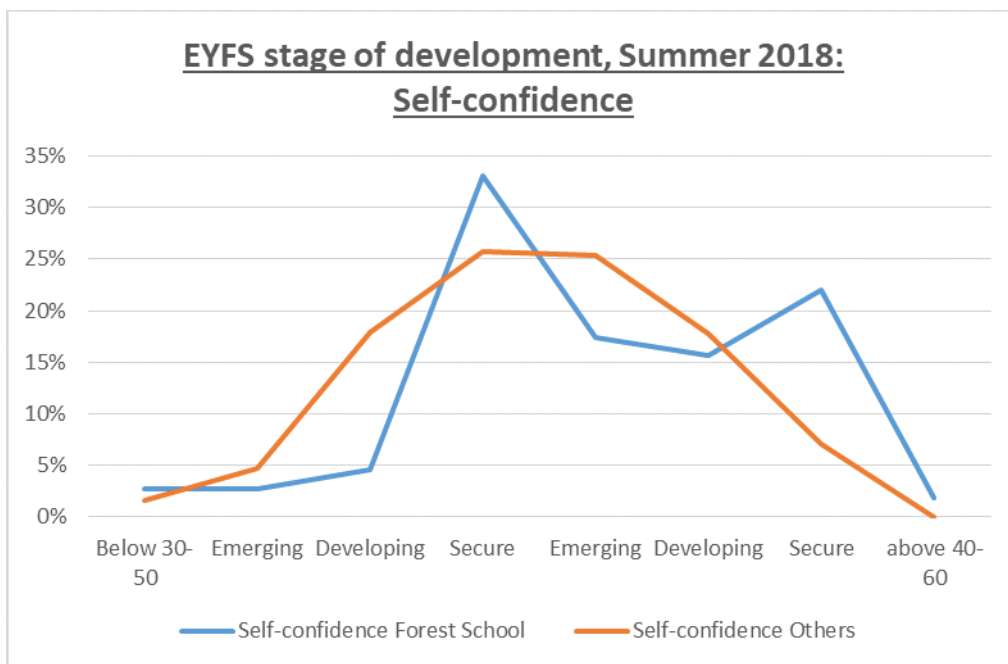


Figure 6: CASEY data for Self-confidence Summer 2018

An examination of the curves on the three charts illustrates the findings we found interesting. As can be seen from the shapes of the two lines in each chart, the profile of the two sets of children is slightly different. Whereas the main population of children follows a standard “bell curve”, the Forest School children are more clustered around the “secure” judgement at 30-50 and at 40-60 months. The difference is perhaps most evident in “Managing Feelings”. This is an interesting finding which has sparked further discussion within the group.

Discussion focused on the following areas:



- Whether the differences between the Forest School sample and the CASEY population were significant, and if so, what conclusions might be drawn to test in further research
  
- What the reasons for the differences might be.

On the first point, the sample of children in CASEY has a strong likelihood to be representative of the population in Cambridgeshire as a whole. The Forest School sample is small, but if taken as a percentage of the children in CASEY, is large enough on which to draw conclusions.

In looking at reasons for differences, the group discussed the following aspects:

- a) Characteristics of settings (and self-selecting parents/children)
  
  - b) Characteristics of practitioners
  
  - c) Context provided by Forest School activity as a direct and indirect influence on children's demonstrated stage of development
  
  - d) Genuine differences in stage of development
- A) Characteristics of settings: the argument that the sample is biased because settings offering Forest School will market themselves more confidently, attracting self-confident parents with high aspirations for their children, who potentially bring other factors into the home environment which would support a more advanced stage of development in this area. Whilst this is possible, the geographical and social spread of the settings in relation to other settings using CASEY seems broadly comparable, **though this could be tested further.**
- B) Characteristics of practitioners: children were assessed as confident because the Forest School practitioners themselves were more confident, and projected this onto the children. This might be **cross-checked by looking at the assessment profile for these settings for other areas of the EYFS.** It should also be stated that the assessment for Forest School settings are likely to have been **completed by different practitioners** acting as the child's lead worker.
- C) Context of FS activity: the idea that Forest School activity itself offers more opportunities for children to demonstrate the skills and behaviours to evidence a judgement of "secure" than their peers in other settings, making it more likely for their settings to make a judgement at that stage (direct influence); or that

behaviour observed in the Forest School environment allows practitioners to gain more insight into other behaviour observed elsewhere (indirect). In either case, Forest School activity could be argued to support children's development effectively in these areas.

- D) Genuine differences in development: the idea that Forest School activity genuinely promotes children's growth and development in such a way as to be visible in these areas of the Early Years Foundation stage by the end of the pre-school year. Such a finding, if validated, would support the anecdotal and individual case study evidence, as well as the convictions of many practitioners.

### Conclusion

In the light of this data analysis, Arnold and Knight believe that it may be possible to demonstrate that Forest School activity in early years settings is having an impact on children's development in the personal, social and emotional domain. Whilst this current analysis can only be regarded as a starting point, this is a promising area for research, particularly as much of the previous research in the area has been qualitative in nature and therefore perceived by policy makers and budget holders as being of less significance. In times of budgetary constraint, all evidence of effective educational interventions and strategies is to be welcomed, particularly when there are potential health benefits to be had as well.

### Recommendations

Our discussions are now how we should set this finding in a proper research context, to form a research question that can be explored and scaled up in such a way as to have wider validity and credibility. **A significance test can be done on the mean scores to determine the probability that the difference is significant.** However, the main purpose in this initial analysis was to identify potential lines of enquiry for high level data. The data underpinning the analysis should be further tested (see areas in bold above) and peer reviewed within the Council to minimise the chances of the findings being invalid. Further investigations would benefit from matching settings that do and do not offer FS opportunities according to set criteria such as urban/rural location, numbers of children in each group, numbers of children eligible for free school meals, and numbers of children with identified additional requirements. Balancing the size of the two comparable cohorts and making a clear differentiation between the two sets of data should produce more robust findings.

### Acknowledgements

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