every experience matters

An evidence based research report on the role of learning outside the classroom for children's whole development from birth to eighteen years.

Dr Karen Malone

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Research summary

Does it really matter whether children have learning experiences outside of their classroom?

The report *Every Experience Matters* was commissioned by Farming and Countryside Education (FACE) to support the actions identified through the Learning Outside the Classroom Manifesto released by the DfES in 2006, in particular the commitment by the Manifesto partners to continue to develop the evidence base to support and guide the development of learning outside the classroom.

When the UK government published "Every Child Matters: Change for Children" they stated children should be healthy, safe, enjoy and achieve, make a positive contribution and achieve economic well being. This review conducted on the benefits and impacts of Learning Outside the Classroom (LOtC) provides evidence that "every experience matters" and can contribute to children's whole development and to the achievement of these five outcomes. Additionally, it serves to acknowledge the important role LOtC could have in raising young people's achievement in the National Curriculum and building the foundation for the Sustainable Schools programme.

The *Every Experience Matters* report draws on research from around the globe and provides evidence that children engaged in LOtC achieve higher scores in class tests, have greater levels of physical fitness and motor skill development, increased confidence and self-esteem, show leadership qualities, are socially competent and more environmentally responsible. The review confirms that, when children experience the world through explorative play and experiential learning activities in school grounds, wilderness camps, art galleries, parks, or community settings their lives can be positively changed. All these experiences can lay the foundation for shaping a child's growing knowledge, confidence and identity.

This evidence-based review supports the argument that *Every Experience Matters* for children and young people. Experiences outside the formal classroom help

provide the blueprint on which young people continue to build throughout their schooling. Evidence now exists that these experiences will have significant impact on the child's whole development.

This evidence has come at an important time as, around the globe, we find children and young people are experiencing a change in the way they engage and learn through the natural, cultural and physical world. This change, signified by many parents withdrawing their children from public spaces such as parks, streets and community facilities, is predominantly fed by a culture of fear and insecurity.

Additionally, in response to litigation concerns over managing 'risk', some schools are limiting out of school activities, therefore eliminating potentially rich learning experiences for children. This is in light of current childhood research that states by not allowing children to engage in independent mobility and environmental learning, teachers and parents are denying children the opportunity to develop the skills and resilience that they need to be able to be safe and manage complex environments. There are indications that this will have long-term implications for children's future development, health and well-being.

In conjunction with questions around the quality of children's experiences there has been growing debate around the relevance of what children are 'learning' in the classroom. There has been a call for a balance between what children learn and do in classrooms and what they are exposed to and experience outside the classroom. Problem-based learning, real world learning, experiential learning - all these learning models emphasise children's problem solving and critical skills using real life problems and experiences beyond the classroom walls. They are about bringing the world into the classroom and the classroom into the world.

The outcome of the review provides evidence that by experiencing the world beyond the classroom children:
Achieve higher results in the knowledge and skill acquisition;
Increase their physical health and motor skills;
Socialise and interact in new and different ways with their peers and adults;
Show improved attention, enhanced self-concept, self-esteem and mental health;

Change their environmental behaviours for the positive, as do their values and attitudes; and their resilience to be able to respond to changing conditions in their environment.

The review has been organised around the five areas where the evidence was substantiated that children benefit from learning outside the classroom: children's learning, children's social interactions, children's emotional well-being; children's physical experiences; and children's responses and behaviour change.

The evidence includes research conducted with adults and children and is school and non-school based.

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Background to review

The arguments for the importance of rich 'life experiences' for children's healthy development and to enhance educational relevance are built on the assumption that we *know* that children learning outside a classroom environment is essential for developing the whole child and should be valued… but what do we really *know*? Is there systematic evidence to support the intuitive views that often pervade our understanding of the value of learning outside the four walls of a formal classroom environment?

The task of this review has been to provide a conceptual framework for analysing and documenting the existence of the most current research evidence and then use this to analyse the results of the review. This evidence based research review draws together studies that span both formal and non-formal learning outside the classroom to develop a case to support the claim that *experiential learning outside the classroom is essential for developing the 'whole young person'*.

The reviewer was asked to answer the following two questions through the research evidence:
Why is experiential learning outside the classroom essential for developing the 'whole young person'?
What is learning outside the classroom's effect and why is it needed for the development of cognitive, non-cognitive, emotional, behavioural and social skills?

Learning Outside the Classroom (LOtC) in this review is defined firstly as the opportunities initiated by teachers and/or students to engage with alternative learning settings to complement and/or supplement the formal indoors classroom curricula. Secondly, for the purpose of this review, we have also included research evidence supporting the impact of non-formal outside learning that happens in community or informal educational settings, and is also focused on the development of the whole child.

This review therefore covers reports on research where the location of outside learning was part of the young person's formal and non-formal educational life. The

aim was to identify evidence based research that had been conducted in a variety of possible learning locations beyond the classroom. It acknowledges the extensive foundation that Rickinson et al (2004) developed in their review of research on outdoor learning and has therefore sought not to duplicate, but expand their findings. This review is different to the Rickinson review in four key ways:

1. Rickinson et. al (2004) focused on learning in outdoor environments and did not include learning in indoor settings that were situated outside the formal school classroom such as the museum, art gallery and zoo. There were eleven locations or sites for learning used to analyse the research for this report. These locations included school grounds, galleries, museums, field centres, gardens, parks and playgrounds, wilderness, community, urban spaces, camps.
2. This review provides evidence that is based not just on formal education research but extends into relevant research from a variety of fields of enquiry where children's learning in community life (non-formal) is viewed as supplementary to formal education.
3. Rickinson et. al (2004) addressed the period from 1993-2003. To complement their study, we have focused on research published post 2003 although if a report was deemed seminal and earlier than this time, it was included.
4. The focus of our review is on children/young people in the 0-18 year age group (early childhood, primary and secondary), whereas the Rickinson et. al review did not include early childhood but extended from primary to tertiary education.

Experiential learning, as defined in this report, is a process that develops knowledge, skills and attitudes based on consciously thinking about an experience. Thus, it involves direct and active personal experience combined with reflection and feedback. Experiential learning is therefore personal and effective in nature, influencing both feelings and emotions as well as enhancing knowledge and skills. For a research report in this review to be deemed relevant in terms of its contribution to the notion of experiential learning, there needed to be an evaluation process that illustrated evidence as an outcome of the 'learning experience' i.e. a conscious shift in the child's way of thinking, doing, experiencing, feeling, interacting or responding.

The age of young people in this review is based on the definition of a child being 0-18 years old as enshrined in the Convention of the Rights of the Child. Child,

children and young person will be used interchangeably with the use of the terms early childhood - children aged 0-6 years, primary 7-11 years and secondary 12-18 years. The evidence base utilised in this review draws from five types of research: quantitative, qualitative, mixed-method, action/participatory research and literature reviews. Over 100 research items were reviewed and 50 have been included in the final report (Graph 1). Reports were eliminated if there was evidence of weakness in the methodological design and if their findings made a limited contribution to an already well-documented area.

The representation of children in the reviewed articles included primary aged children being the highest (36 or 50%), then secondary (25 or 34%) and early childhood (12 or 16%) respectively. These percentages are indicative of an emphasis on the middle years of childhood (Graph 2). Additional to research type and age of children, the country location of the research and the site of the research study were also important factors. The articles came from all around the globe: 24 USA, 10 England, 5 Australia, 4 International, 2 Italy, 2 Norway and one from Finland, Belarus, Canada, Sweden and Thailand (Item 3 Appendix). The review sought to find many diverse study sites and then grouped them to maintain the integrity of the diversity. One project could be represented by more than one location.

Of the eleven groups of study sites, school grounds and museums were significant research locations providing the greatest breadth, depth and diversity of results. In contrast research on galleries, camps and wilderness experiences tended to be one-off and small in number (Graph 3). While there has also been significant research done in farms and gardens, the review of these projects was limited to a representative sample to complement, rather than reproduce, the work already done in these fields by Rickinson et. al (2006) and Dillion et. al. (2004). Appendix 1 contains the table of research type descriptions and Graphs 1, 2 & 3.

Conceptual framework

Due to time restrictions and resources this review was not conducted with the intent of identifying all the evidence. Instead, it was a scoping exercise to identify where evidence exists and to develop a conceptual framework for analysing these. The two components to the conceptual framework are: the relationship between fields of enquiry and conceptual themes in the literature; and the outcomes described as the evidential benefits of LOtC for the whole development of the young person.

Fields of enquiry and conceptual themes

The conceptual framework emerged as a consequence of the reviewing process and it allowed the author to take advantage of an evidence base much broader then just educational research. It was derived from corresponding formal and non-formal education themes and then linking these themes back to the fields of enquiry. When building the conceptual frame it was clear that learning outside the classroom in relation to the 'whole child' emanated prominently from five fields of enquiry: psychology, learning, sociology, space/place and health. The expanded conceptual frame across these five fields of enquiry strengthened the case to take non-formal education research and apply it to formal education contexts.

Taylor and Kuo's (2006) work on the restorative nature of green spaces for children's mental health is a good example of this linkage. The research was conducted in non-school settings but has been influential in informing debates on the benefits of out-of-classroom experiences for children's mental health and well-being, specifically children with AHDH. Image 1 illustrates the relationship between the five key fields of enquiry and the translation of concepts and themes in the non-formal and formal education literature.

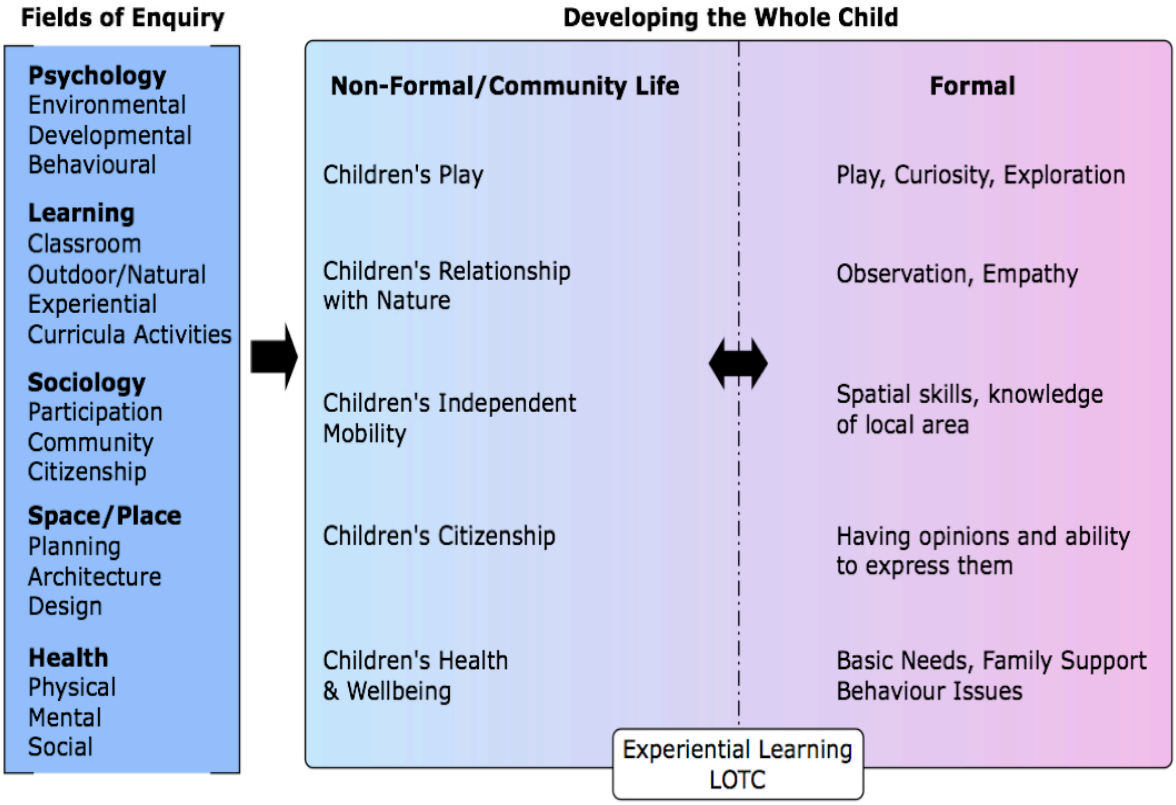


Image 1: Fields of enquiry and key LOtC conceptual themes in school and non-school research

Outcomes as benefits to development of 'whole young person'

Once research was identified using the fields of enquiry model the cross-disciplinary research evidence was then categorised across the five domains of child development: cognitive, physical, social, emotional and personal. In everyday terms these domains are identified as *benefits* for the child and are expressed as what knowledge and skills the young person learns; what physical experiences they encounter; how they interact with others during and after the experience; how they feel emotionally as a consequence of the activity; and how they respond, whether through a behaviour change or a shift in values and attitudes. The descriptors for these benefits were then identified in the research studies to illustrate the relationship between LOtC and the research findings. The five categories that the research supports as benefits, the expressions of benefit and the descriptors are identified in Image 2.

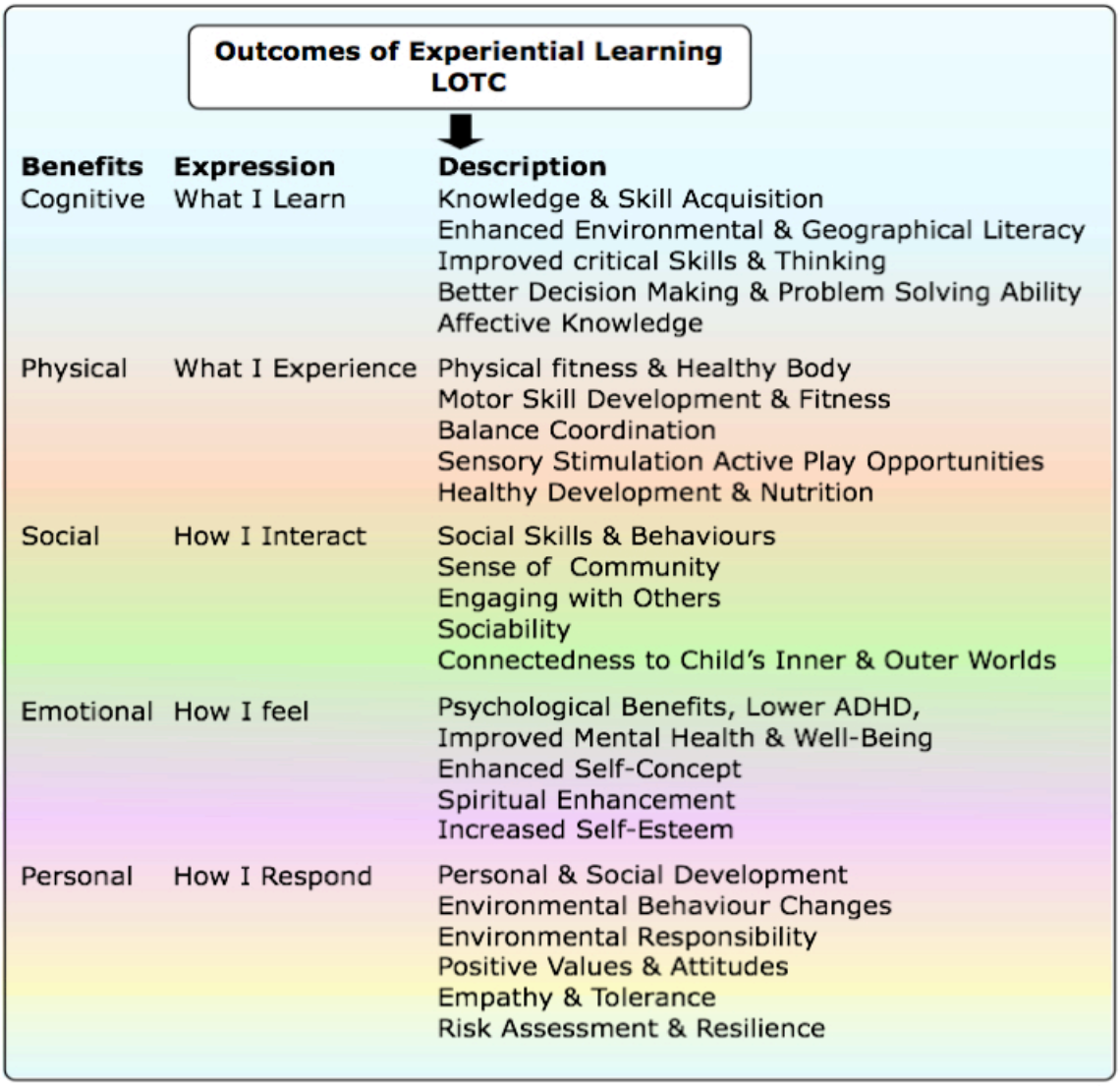
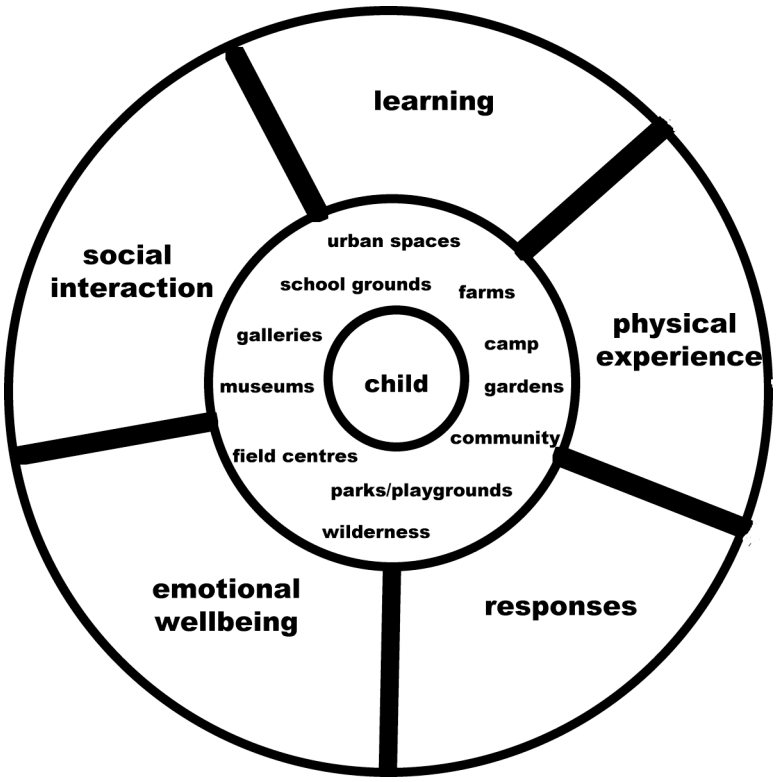


Image 2: Definitions of outcomes as benefits in the five domains of child development as generated from the review of out-of-classroom learning

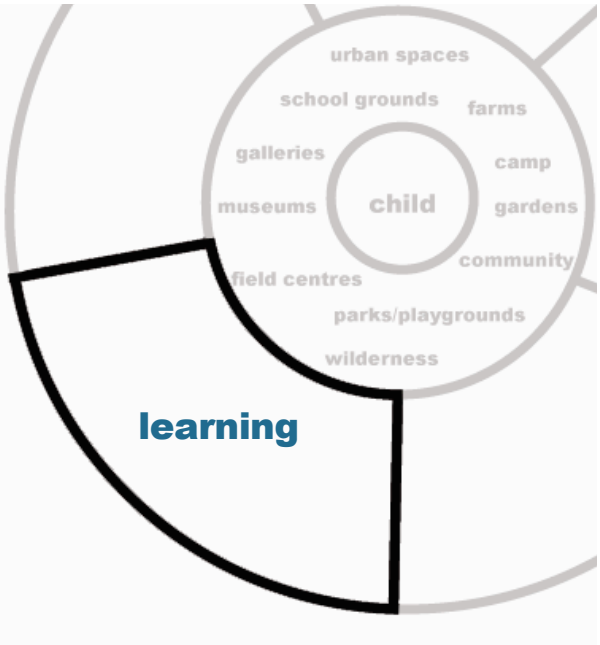
Evidence from review



There is evidence from a number of significant research studies that children and young people benefit substantially and in a variety of ways from LOtC. These benefits identified as predominantly 'learning outcomes' in formal education research and 'child development' in non-formal education research. They support a general hypothesis that learning outside the classroom has a significant impact on children's learning and is supportive of healthy child development in the cognitive domain (children's learning), physical domain (children's physical experiences), social (children's social interaction) emotional (children's emotional well-being) and personal domains (children's responses). Discussion of the results of the review focuses on these five domains of children's 'whole' development. Research outcomes were not always restricted to one domain, and in tabulating the results multiple domains were recorded.

For all development domains mixed-method was the most prevailing research type. The review reveals there is evidence to support benefits in each of the domains for each of the locations except for galleries and community where no research evidence was found to support emotional benefits. Results of the review were collated into tables sorted by following headings: research support for learning outcomes and stages of education; research method used to identify learning outcomes; and research location and learning outcomes. These tables are provided in the appendices.

Children's learning



- knowledge & skill acquisition
- environmental & geographical literacy
- decision making& problem solving
- critical skills and thinking
- affective knowledge

"Because if you just read stuff out of a book, it's not really enjoyable and you don't really remember it. But if you go there then you'll enjoy yourself, you'll have great fun and it'll stick in your mind" (Secondary School student).

Evidence in this domain was described as knowledge and skills acquisition, enhanced environmental and geographical literacy, improved critical skills and thinking, better decision making and problem solving abilities and affective knowledge. The research location supporting cognitive benefits tended to be more predominantly in school grounds, museums, gardens and urban spaces. By far the most substantial longitudinal research that has been conducted in the cognitive domain in out-of-classroom learning has been the evaluation of the EIC (Environment as an Integrating Context) education model developed and evaluated by SEER (State Education & Environment Roundtable). See box 1 for a description. Research by Ernst and Monroe (2007) affirms the SEER findings and contributes to evidence around the relationship between environment based education and acquisition of critical thinking skills.

The Thinking through Art project (ISGM 2007) is a study of 135 third, fourth and fifth graders from five elementary schools who engaged in museum multi-visits. The students were tested for critical thinking skills using a rubric that was refined over a three-year period against a control group. The report states: "The data from the

performance assessment part of the study consistently showed that students in the ISGM multiple visit programme out-performed a group of comparison students who did not participate in any type of art museum/school programme. Students in the ISGM programme not only used more critical skills, they used a variety of critical thinking categories as measured by the rubric (2007: 38)."

Box 1: State Education & Environment Roundtable Research

Environment as an Integrating Context is an education model that employs natural and community surroundings as the context for learning while taking into account best practice in education. There are six components to the model which include using natural and community settings, community based investigations, focus on service learning and environmental research, cooperative, integrated and learner–centred instruction (Liberman and Hoody 1998). From 2001-2002 SEER reported the results from their research on the impact of EIC on 4426 K-12 students in the California area. The study revealed the treatment students outperformed traditional students on comprehension and discipline specific standardised test scores in 70% of cases. SEER's latest report released in 2005 (SEER 2005) was a mixed-method approach where they analysed the standardised test data from four original study schools and also conducted interviews with students. The evidence revealed: *"In over 96% of all cases treatment students scored as well or significantly higher than control students"* (SEER 2005: 1).

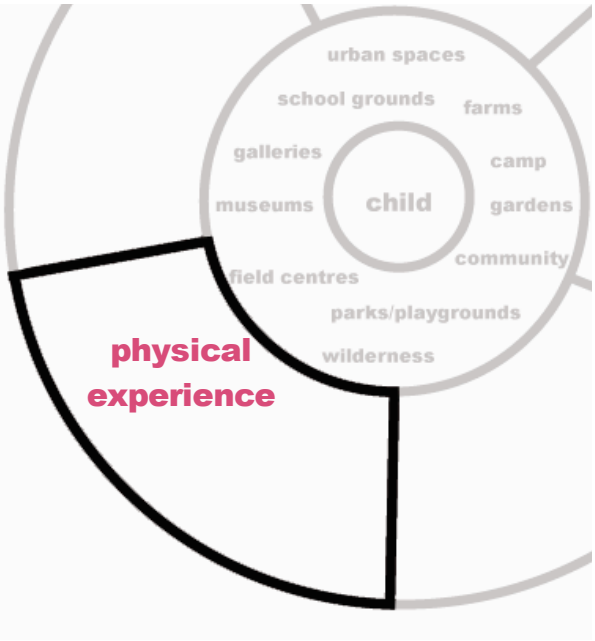
Box 2 also provides an example of a museum research project from England focusing on students' educational outcomes. Studies in the cognitive domain often have a complementary evaluation of personal development – particularly behaviour changes and affective learning. Examples of this are the study by Kruse and Card (2004) where they pre-test, post-tested and delay post-tested 338 ten to eighteen year olds who had participated in a zoo camp for knowledge, attitude and behaviour change.

Box 2: Engage, Learn, Achieve

The Research Centre for Museums and Galleries (RCMG) has conducted a number of research studies on the benefits and impacts of museums and art galleries on young people's development. *Engage, Learn and Achieve* is a recent large scale study that provides significant evidence on the impact and benefits of museum visits for young people's learning outcomes. Five museums, nine schools and 762 students participated in the study in the academic year of 2006-2007. The researchers used a mixed method approach. The results of the research provided evidence of the positive impact of museums on pupils motivation, emotional and social well-being and an increase in attainment (measured as increase in assessment grades): *"Judging from the evidence from the assignment marks provided by schools. For many pupils the positive experience at the museum … translated into an increase in marks or grades for their museum–related assignment when compared with previous assignment marks"* (Watson et al 2007: 123).

The report states: *"Results indicated that conservation knowledge scores increased over the study period, as did attitude and behaviour"* (2004: 33). Dillon et al. (2003: 39) in their review of research in food and farming education supported these other projects and added the affective impacts when they stated: *"Research in [farm] fieldwork suggests that it can aid long-term memory, bring about affective benefits and reinforce academic learning".*

Children's physical experience



- physical fitness
- motor skills
- coordination
- sensory experience
- nutrition

"It's noisy in the classroom and it's hard to concentrate, sometimes I would pretend to go to the toilet just to get out, get fresh air and move my body" (Sasha, aged 8).

The physical benefits of being out of the classroom are evaluated in terms of physical fitness, motor skills development, coordination, sensory and tactile experiences, nutrition and the health of the body.

When reviewing studies for this domain, research was excluded if it was conducted on or as part of a formal sport or physical education activity in school grounds or gymnasiums. Outdoor free play or extra curricular activities such as camps were included.

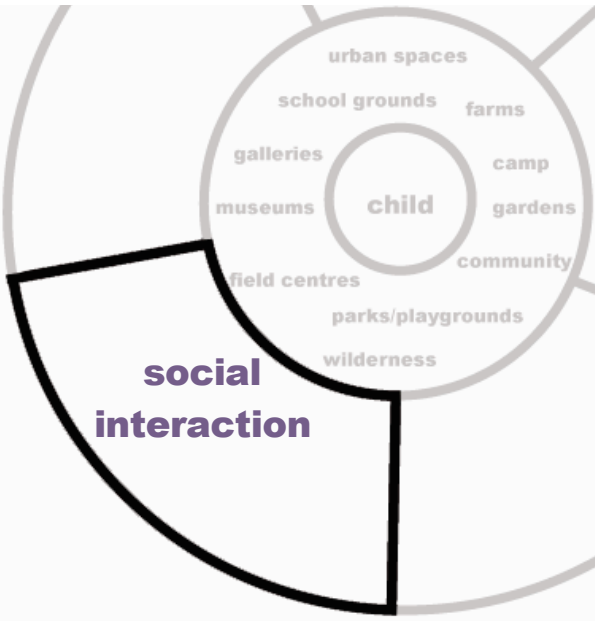
The physical domain was an area where there was limited research evidence on the impacts of LOtC. Of those reviewed and included the two most compelling studies were by Fjortoft (2000) and Thompson et al (2006). Both of these studies provide evidence of the significant impact of outdoor and/or wilderness environments on children and young people.

Thompson et al (2006: 30) write in their conclusions on the study with young people aged 12-18 years: *"Experience of the outdoors and wild adventure space has the potential to confer a wide range of benefits on young people. Benefits may arise directly, through engagement with the elements of wild adventure space and natural outdoor environments, and indirectly, through the experience of activities and structured programmes organised within such environments. Benefits such as increased physical fitness and positive attitudes to outdoor activity can make an important contribution to tackling obesity and supporting healthy lifestyles in young people."* The results of Fjortoft research is summarised in Box 3.

Box 3: Landscape as Playscape

This study, conducted as a PHD project by Ingunn Fjortoft in Norway, used a quasi-experimental approach to compare three student groups of five to seven year old kindergarten children - two with access only to a traditional outdoor playground, with one group being offered free play and versatile activities in a nearby forest for 1-2 hours everyday. The groups were then tested using the European test of Physical Fitness and Motor Fitness Test (EUROFIT). The results from the test revealed: *"The intervention effect of physical activity play in a natural environment showed improvement in all the motor abilities tested, except fort flexibility in the experimental group. Compared to the reference group, significant differences were found in balance and co-ordination abilities tested by the Flamingo balance test and the Indian skip co-ordination test. It was supposed that play in a natural playscape had caused the intervention effect and that more demanding tasks were learned"* (Fjortoft 2000: 31).

Children's social interactions



- sense of community
- social skills & behaviours
- connectedness inner & outer worlds
- engaging with others
- sociability

"I'd say that you learn mostly how to interact with different kinds of people and are open to different ideas. You learn how to cooperate well with others who share and don't share the same opinions as you" (Teo, aged 14).

What are the benefits included in social domain focus on how children and young people interact during LOtC experiences and as a consequence of the experience? The research locations for the 'social' domain mainly comprised museums, school grounds and gardens. Only one study was noted in the community location. The descriptors utilised in studies of the social domain included social skills and behaviours, sense of community, engaging with others, sociability, and connectedness between children's inner and outer worlds. The *Champions of Change* report discussed in Box 4 is a compilation report of relevant Arts based research – much of it provides significant evidence in the social domain. Examples of studies in the social domain are limited, and often evidence is secondary to empirical data being gathered for other domains.

For example, Malone and Tranter (2003) illustrate this with their mixed method study of children's school grounds behaviours in five Australian primary schools with children in middle childhood. The focus was to observe children's play behaviours in diverse school grounds settings to identify if the affordance of an environment changed the children's engagement in cognitive play activities. In their observation instrument, one of the fifteen categories was a specific 'social' category (verbal interaction) studied alongside more traditional 'play' behaviours.

The social category was the most frequently observed at 24% of the 1000 observations, and the next most frequently observed behaviour was team games at a low 10% (Malone and Tranter 2003:164). The research findings identified sociability through verbal interaction as a key benefit of primary school ground play for children.

Box 4: Champions of Change

The *Champions of Change* report compiled by Edward Fiske in 1999 provides valuable insights into the benefits of the Arts for the development of young people. It documents unique research on the role of activities such as music, drama and opera in out-of-classroom locations within school and non-school structures. Fiske, in his executive summary, states that the Arts change the learning experience for children and reaches children who are not being reached, connects children to themselves and each other, transforms learning and provides opportunities for developing a learning community between adults and children. The social domain pervades much of the research evidence. In particular, the *Stand and Unfold Yourself* study written by Steve Seidel and published by the Havard Project Zero Shakespeare & Company research group, identifies the key benefits of an Arts project with 800 high school children as learning about working in creative communities and learning about oneself as a learner. Fiske concludes that the Arts programmes: *"provide powerful evidence that on the highest levels of literacy, in the realms of social and personal growth and development, and in the development of high-order thinking skills, the arts provide an ideal setting for multi-faceted and profound learning experiences"* (Fiske 1999: 86).

Children's emotional well-being

- self concept
- self esteem
- spirituality
- mental health

"I feel better about myself. I think that I can do more and I'm proud of myself" (Rachel, aged 13).

The emotional benefit of learning outside the classroom is often overlooked in the formal education context. Research studies tend to focus on the cognitive and personal development of students. When looking for evidence to support emotional development, it was in the non-formal education literature from the fields of psychology and health that the majority of studies were found.

The key themes from this literature often focused on play, relationship with nature and mental health, with the descriptors emanating from the studies as psychological benefits, lower AHDH, improved mental health, enhanced self-concept, spirituality and self-esteem. The sites for the research were predominantly natural or outdoor environments (camps, gardens, schoolgrounds) with little or none in museums, galleries, or urban spaces.

A recently completed doctoral study by Maller (2006) on the impact of hands-on contact with nature for children's mental, emotional, and social health provides a useful example of a study drawing together literature and research to promote LOtC for children's mental health as opposed to relying on evidence purely focused on educational outcomes.

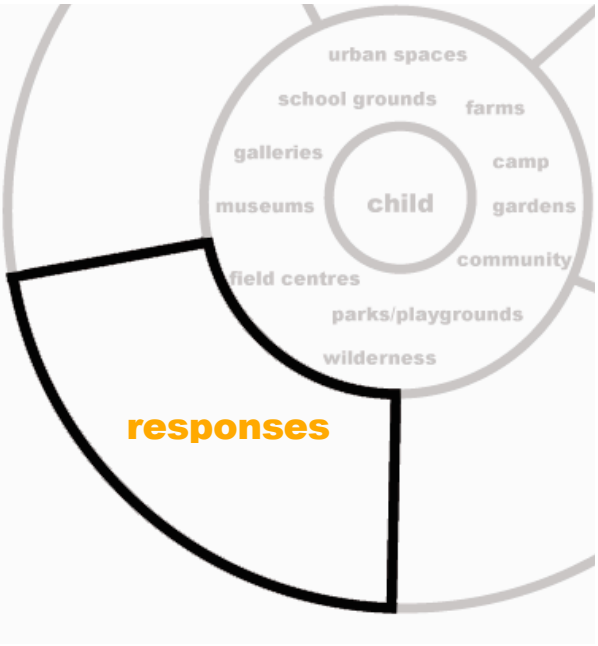
Box 5: Youth Development Outcomes of the Camp Experience

The American Camp Association study conducted by Burkhardt et al (2005) is one of a limited number of large scale studies where the emotional, social and spiritual benefits of LOtC has been evaluated for its impact on young people's development. As a non-school study, 5000 families participated to produce the largest data set ever collected on children and camps. The children were 8-14 years with surveys completed before, after and six months following a stay at a camp. The results of the study suggested that (Burkhardt et al 2005: 2): *"… a stay at summer camp typically benefits children in the following ways: children become more confident and experience increased self-esteem; children develop more social skills that help them make new friends; children grow more independent and show more leadership qualities; children become more adventurous and willing to try new things; especially at camps that emphasise spirituality, children realise spiritual growth"*.

While a limitation of the research is that it is based on the perceptions of adults about benefits, it provides a useful entry point for the work of Taylor and Kuo (2004; 2006) and the recent doctoral work of Bagot (2007) on the restorative capacity of natural environments for children, particularly those with ADHD. Taylor and Kuo, reporting on their earlier studies, write (2006: 130): *"A study of over 450 children with ADHD showed that parent ratings of activities' effects on symptoms indicated a greater reduction in attention deficit symptoms after engaging in activities in green outdoor spaces compared to indoor and built outdoor spaces".*

The study by Burkhardt et al (2005), described in Box 5, which also did not rely on educational outcomes, provides significant evidence of the psychological, emotional and spiritual benefits of the outdoor environment for children and youth.

Children's responses



- values & attitudes
- tolerance
- sense of environmental responsibility
- risk assessment & resilience
- empathy

"Before we went on the trip . . . I didn't really care about like people moving into houses and building stuff. But I've like realised like cos . . . when we saw the wildlife what would be damaged if they blitz that. And before I didn't really care but it has changed my view" (Secondary School student).

The descriptors that were identified as evidence of personal development made reference to young people's behaviour changes, heightened sense of environmental responsibility, positive attitudes and values and enhanced feelings of tolerance, nurturing, resilience and empathy. To be seen as contributing to a young person's personal development the study needed to provide evidence that there was a 'response' as a consequence of the experience.

Chawla's (1999) extensive research and review (Chawla and Cushing 2007) provides significant evidence to support the impact past experiences have on long-term behaviour change. The studies they draw on are primarily retrospective interviews and surveys where adults are asked to identify the source of their environmental interest or concern. This research, which dates from the mid-nineties to the present time, is global in its representation and comes from a diverse sample base (more recently with secondary students in Germany by Bogeholz 2006).

Box 6: National Trust Guardianship Scheme

National Trust Guardianship Scheme seeks to address the negative impacts of limited opportunities for children to engage with the outdoors. Guardianship differs from much out-of-classroom learning because it focuses on multi-visits to a single site. Peacock's (2006) research on the program sought to provide tangible evidence about the benefits of the programme for the whole development of children and youth. The study (Peacock 2006: 15, 21) with 8 schools and 108 students, provides evidence to support a heightened sense of responsibility by young participants after the programme; "*… pupils had become proud of their locality and expressed resentment at visitors and tourists, who did not treat 'their' environment with respect. Most students also mentioned their changed attitudes to recycling and avoiding waste".* Significant behaviour changes were also noted, *"The main change in behaviour that students referred to was the frequency with which they continued to visit the site. 68% claimed that they still visited the NT property regularly, and 35% indicated they were NT members".*

The findings illustrate: " *… that from half to more than 80% of the respondents identify childhood experiences of nature as a significant experience, such as free play, hiking, camping, fishing and berry picking. They mention influential family members or other role models equally often or second in importance. As one would expect, environmental educators often attribute their vocation to influential teachers and education. Other common answers are experiences in organisations like the scouts or environmental groups, witnessing the destruction or pollution of a valued place, and reading books about nature and the environment"* (Chawla and Cushing 2007: 440). Often criticised for being adult-centric, these studies are now being supported by work with young people (see for example Bixler et al 2002 and Bogeholz 2006).

The study by Peacock (2006) described in Box 6, while not longitudinal, illustrates that the possible starting point for long term behaviour changes as described by Chawla (1999) is possible through funded programmes such as the National Trust Guardianship Scheme.

Shifting the focus to indoor sites, the review by Falk (1999:265) provides significant evidence on the role of museums and art galleries in personal development. Of the *Art Around the Corner* programme with fifth and sixth graders he writes: *"Findings from this series of studies suggested that not only did participation in the programme impart positive attitudes in graduates toward both art museums and art in general, but relative to controls, Art Around the Corner graduates expressed a genuine appreciation and love for works of art and demonstrated enhanced abilities to articulate their responses toward art".* Falk (1999) reviews a number of other significant studies in this way.

Building further evidence

The evidence base for LOtC is growing rapidly, adding much needed research to the observed and intuitive knowledge of educational practitioners. However, there are many gaps that still need to be addressed. In the early childhood area there were a number of evidence based studies but most with very small numbers of children and therefore less persuasive in their contribution to evidence. For very young children, babies for example, it is clear the terminology 'learning outside the classroom' is not relevant in this context and needs to be reconsidered.

While there was clearly evidence of well-structured and researched quantitative studies, the multi-method and action research projects were less rigorous and less likely to have replicability for on going comparative possibilities - yet there are some new models emerging.

The UK Forest School provides a relatively simple and innovative assessment model that can be adapted by other professionals. It applies a similar conceptual framework to the one presented at the beginning of this report, and is linked to learning objectives and actual outcomes. In a report for the Forestry Commission England and Forest Research, O'Brien and Murray (2006) describe the three-stage assessment methodology. This includes:

- the development of story boards by Forest School leaders, teachers and parents to determine the hypotheses, indicators and data collection techniques for each particular site;
- the collection of a variety of data by the leaders using observation templates that are standardised across sites;
- an evaluation of children's learning according to a three-point scale;
- the triangulation of leaders' observations with those of the children's classroom teachers for purposes of reflection and further learning by stakeholders.

The value of this type of approach is its replicability and comparability.

There is also an important need to develop a clearing house for the studies that are being conducted and for this storage to be organised utilising some form of conceptual framework that makes it easy for including both school and non-school literature. Currently, there are a number valuable models of on-line sites that have been collating relevant research and acting as clearing houses.

Of particular interest in regard to research studies are The Center for Informal Learning and Schools (CILS) and The CYE (Child and Youth Environments) Journal. Based in the US, CILS "conducts research on informal learning, the

informal science education infrastructure, and the connections between in- and out-of-school science learning", while CYE is a publication based site endorsed by UN-Habitat "which supports the sharing of knowledge across disciplinary and national boundaries". Other websites also act as clearing houses such as:

- Frode Svane whose Banas Lanskap Acktivist Arkiv website from Norway
- The Institute for Outdoor Learning, UK
- Learning through Landscapes, UK
- The Natural Learning Centre, USA
- Archives and Museum Informatics.

These are just a sample and many others exist. As the evidence base grows, these types of 'knowledge repositories' will enable quick and easy access to ideas and program models. They should also guide researchers to better design research projects that will support and build on our universal knowledge of how to create the opportunities for children to experience the world beyond the classroom as a central element of their learning and their whole development.

Building on the foundation that has been established is key to establishing an evidence base that will convince educators, parents, politicians of the need to invest in children's long term future through LOtC. Without it the battle will continue to be between what is seen as core activities for children's education – the real work in the classroom and the additional 'fun' work that goes on outside the classroom. That is if there is any time left over, which increasingly there isn't.

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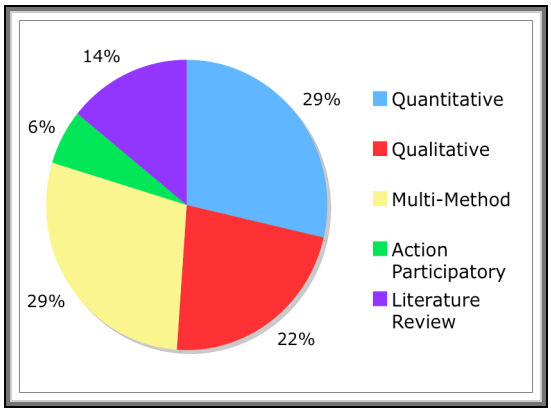
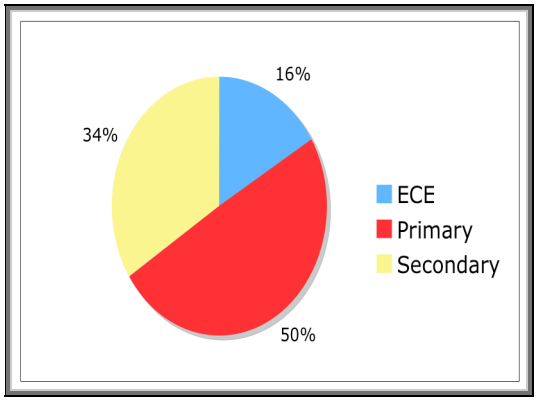
Appendices

Item 1: Research types and descriptions

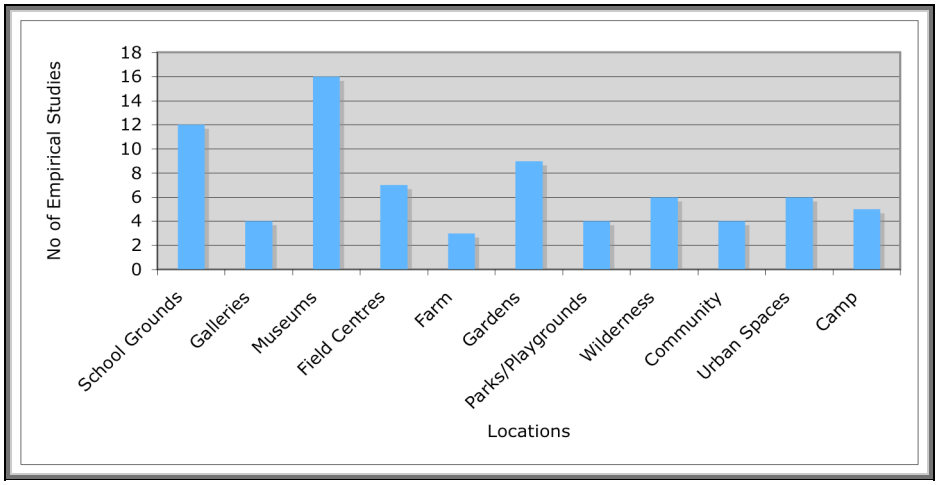
Research Type	Description
Quantitative	Research that adheres to a positivist philosophy and seeks to determine the relationships between variable and particularly, cause and effect relationships.
Qualitative	Research approach that draws on phenomenology and seeks to make sense of social phenomena as they occur in natural settings. It adheres to an interpretivist paradigm of research.
Mixed-method	A mixed method approach draws on both qualitative and quantitative approaches to either: confirm findings of the other approach; as a starting point to complement existing findings; or to value add to data arrived from using a pervious approach.
Action/participatory research	Research that adheres to a critical social science paradigm and seeks to engage participants as collaborators in research through a process or cycles of research design, reflection and action. It has an emancipatory intent.
Literature Review	Research that collates and analyses research data from a variety of secondary sources and organises the research data in terms of its significance to certain literary codes and/or conceptual themes.



Graph 1: Overview of types of research studies reviewed

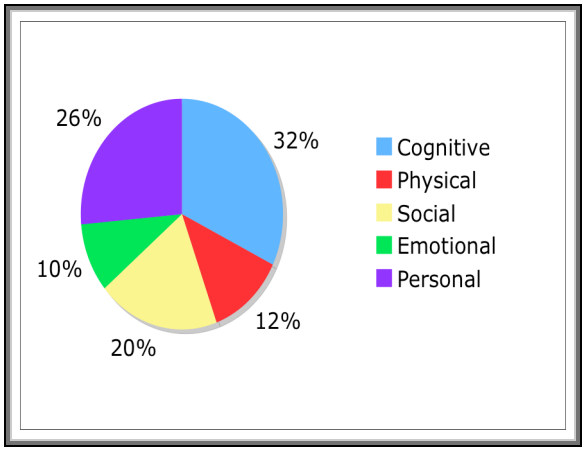


Graph 2: Level of schooling represented in research studies

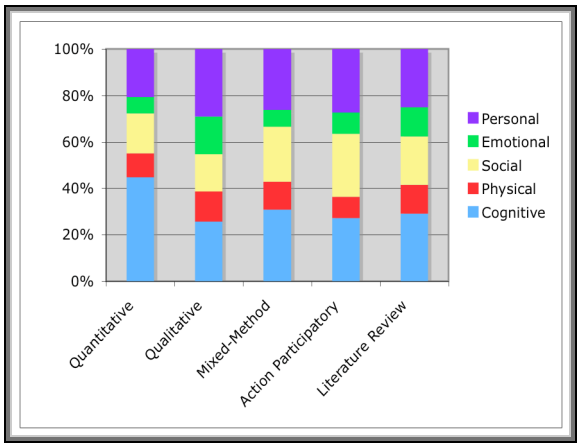


Graph 3: Overview of study number and location

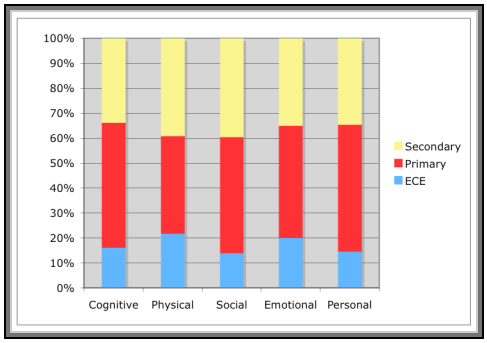
Item 2: Graphing of the evidence sources



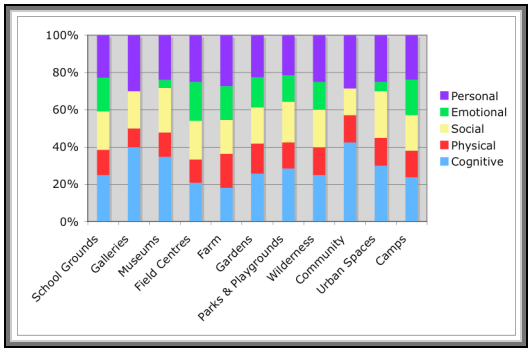
Graph 4: Percentage of benefits identified in reviewed articles



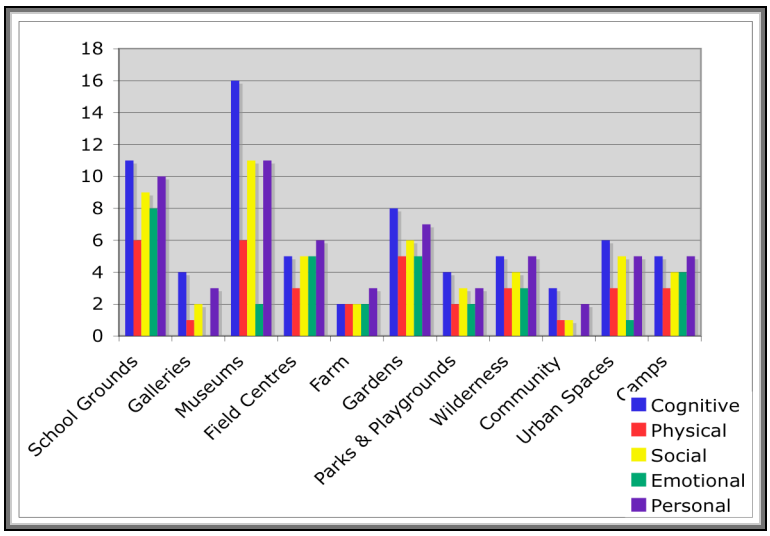
Graph 5: Evidence of benefits according to type of research study



Graph 6: Evidence of benefits according to educational level/age of children



Graph 7: Percentage of evidence of benefit for each location of LOTC



Graph 8: Total number of studies and their evidence of benefits according to location

Research Support for Learning Outcomes and Stages of Education

	ECE	*Primary*	*Secondary*	*Total Articles*
Cognitive	10	30	21	41
Physical	5	9	9	16
Social	6	20	17	26
Emotional	4	9	7	15
Personal	8	28	19	34

Table 1: Number of articles supporting learning outcomes for each stage of formal education

Research Method Used to Identify Learning Outcomes

	Quantitative	*Qualitative*	*Mixed-Method*	*Action Participatory*	*Literature Review*
Cognitive	14	6	13	3	8
Physical	3	3	5	1	4
Social	5	4	10	3	6
Emotional	2	5	3	1	3
Personal	7	7	11	3	7

Table 2: Types of methods used to identify learning outcomes.

Research Location and Learning Outcomes					
	Cognitive	*Physical*	*Social*	*Emotional*	*Personal*
School Grounds	11	6	9	8	10
Galleries	4	1	2	0	3
Museums	16	6	11	2	11
Field Centres	5	3	5	5	6
Farm	2	2	2	2	3
Gardens	8	5	6	5	8
Parks & Playgrounds	4	2	3	2	3
Wilderness	5	3	4	3	5
Community	3	1	1	0	2
Urban Spaces	6	3	5	1	5
Camps	5	3	4	4	5

Table 3: Research location of studies identifying learning outcomes.

Item 3: Geographical location of studies

Author	Year	Geographic Location
Bagot et al	2007	Australia
Chawla & Cushing	2007	International
Durlack & Weissburg	2007	USA
Ernst & Monroe	2007	USA
Farmer et al	2007	USA
Gill	2007	England
Graham & Robinson	2007	USA
Hansen & Larson	2007	USA
Henderson & Antencio	2007	USA
Hooper-Greenhill et al	2007	England
Institute for Learning Innovation	2007	USA
Maller	2007	Australia
McCrae	2007	England
Scripp	2007	USA
Strong-Wilson	2007	Canada
Watson	2007	England
Burnaford	2006	USA
Dillon et al	2006	England
Farmer et al	2006	USA
Fletcher	2006	Australia
Hooper-Greenhill et al	2006	England
Louv	2006	International
Peacock	2006	England
Phillips	2006	USA
Taylor & Kuo	2006	USA
Thompson et al	2006	England
Burkhardt et al	2005	USA
Prezza et al	2005	Italy
Seer	2005	USA
Böjrklid	2004	Sweden
Kruse & Card	2004	USA
Kuo & Faber Taylor	2004	USA
Rickinson	2004	England
Rickinson et al	2004	International
Dillon et al	2003	International
Kytta	2003	Finland & Belarus
LTL	2003	England
Malone & Tranter	2003	Australia
Bixler et al	2002	USA
Deasy	2002	USA
Crowley et al	2001	USA
Prezza et al	2001	Italy
Ratanapojnard	2001	Thailand
Basile	2000	USA
Fjortoft	2000	Norway
Chawla	1999	USA & Norway

Falk	1999	USA & Australia
Fiske	1999	USA
Skelly & Zajicek	1998	USA
Mabie & Baker	1996	USA

Item 4: Children's learning

Author	Year	Level	Location	Research
Bagot et al	2007	P	S	MM
Durlack & Weissburg	2007	P,S	M,CO	QT
Ernst & Monroe	2007	EC,P	P	QT
Gill	2007	EC,P,S	G,P	LR
Graham & Robinson	2007	S	M,W	MM
Hansen & Larson	2007	S	M,U	QT
Henderson & Antencio	2007	EC,P,S	M	LR
Hooper-Greenhill et al	2007	EC,P,S	M	MM
Institute for Learning Innovation	2007	EC	A	MM
Maller	2007	P	S,FC,G,P,C	MM
McCrae	2007	EC	M	QL
Scripp	2007	P	M	AR
Strong-Wilson	2007	EC		QL
Watson	2007	P,S	M	MM
Burnaford	2006	P,S	M	LR
Dillon et al	2006	P,S	S,FC,G	AR LR
Fletcher	2006	EC	S,G	QL
Hooper-Greenhill et al	2006	P,S	M	QT
Louv	2006	P,S	G,P	LR
Peacock	2006	P,S	FC	QL
Phillips	2006	EC,P,S	M	MM
Taylor & Kuo	2006	P	S,P,W,U	QT
Thompson et al	2006	S	W	QL
Burkhardt et al	2005	P	W,C	MM
Prezza et al	2005	P	U	MM
Seer	2005	P,S	C	MM
Böjrklid	2004	P	U	MM
Kruse & Card	2004	P	C	QL
Rickinson	2004	S	S	AR
Rickinson et al	2004	P,S	S,FC,F,G,C	LR
Dillon et al	2003	EC,P,S	S,M,FC,F,G,C	LR
Kytta	2003	P	U	MM
Malone & Tranter	2003	P	S	QL
Bixler et al	2002	S	W	QT
Deasy	2002	P,S	A,M	MM LR

Crowley et al	2001		M	QL
Prezza et al	2001	P	U	MM
Ratanapojnard	2001	P	S	QL
Basile	2000	P	S	QT
Falk	1999	P	M	LR
Fiske	1999	P,S	P	QT
Skelly & Zajicek	1998	P	G	QT
Mabie & Baker	1996	S	G	QT

Definitions
Educational level: EC Early childhood, P Primary S Secondary
Location: S Schoolgrounds, A Galleries, M Museums, FC Field Centres F Farms, G Gardens, P Parks/playgrounds, W Wilderness, CO Community, U Urban spaces, C Camp
Research: QT Quantitative, QL Qualitative, MM Mixed method, LR Literature review

Item 5: Children's physical experience

Author	Year	Level	Location	Research
Durlack & Weissburg	2007	P	M, C	QL
Gill	2007	EC,P,S	G, P	LR
Graham & Robinson	2007	S	M, W	MM
Hansen & Larson	2007	S	M, U	QT
Maller	2007	P	S,FC,G,P,C	MM
McCrae	2007	EC	M	QL
Fletcher	2006	EC	S,G	QL
Louv	2006	P, S	G,P	LR
Thompson et al	2006	S	W	QL
Böjrklid	2004	P	U	MM
Rickinson	2004	S	S	AR
Rickinson et al	2004	P, S	S,FC,F,G,C	LR
Dillon et al	2003	EC,P,S	S,M,FC,F,G,C	LR
Kytta	2003	P	U	MM
Malone & Tranter	2003	P	S	QL
Deasy	2002	P, S	A,M	MM LR
Fjortoft	2000	EC	W	QT

Definitions
Educational level: EC Early childhood, P Primary S Secondary
Location: S Schoolgrounds, A Galleries, M Museums, FC Field Centres F Farms, G Gardens, P Parks/playgrounds, W Wilderness, CO Community, U Urban spaces, C Camp
Research: QT Quantitative, QL Qualitative, MM Mixed method, LR Literature review

Item 6: Children's social interaction

Author	Year	Level	Location	Research
Durlack & Weissburg	2007	P,S	M,CO	QT
Gill	2007	EC,P,S	G,P	LR
Graham & Robinson	2007	S	M,W	MM
Hansen & Larson	2007	S	M,U	QT
Henderson & Antencio	2007	EC, P, S	M	LR
Hooper-Greenhill et al	2007	EC, P, S	M	MM
Maller	2007	P	S,FC	MM
Scripp	2007	P	M	AR
Watson	2007	P,S	M	QL
Dillon et al	2006	P,S	S,FC,G	AR, LR
Fletcher	2006	EC	S,G	QL
Louv	2006	P,S	G,P	LR
Peacock	2006	P,S	FC	QL
Phillips	2006	EC,P,S	M	MM
Taylor & Kuo	2006	P	S,P,W,U	QT
Thompson et al	2006	S	W	QL
Burkhardt et al	2007	P	W,C	QT
Prezza et al	2005	P	U	MM
Böjrklid	2004	P	U	MM
Rickinson	2004	S	S	AR
Rickinson et al	2004	P,S	S,FC,F,G,C	LR
Dillon et al	2003	EC,P,S	S,M,FC,F,G,C	LR
LTL	2003	S	S	QL
Malone & Tranter	2003	P	S	QL
Deasy	2002	P,S	A,M	MM
Prezza et al	2001	P	U	MM
Fiske	1999	P,S	A,M	QT

Definitions
Educational level: EC Early childhood, P Primary S Secondary
Location: S Schoolgrounds, A Galleries, M Museums, FC Field Centres F Farms, G Gardens, P Parks/playgrounds, W Wilderness, CO Community, U Urban spaces, C Camp
Research: QT Quantitative, QL Qualitative, MM Mixed method, LR Literature review

Item 7: Children's emotional well-being

Author	Year	Level	Location	Research
Bagot et al	2007	P	S	QL
Hooper-Greenhill et al	2007	EC,P	M	MM
Maller	2007	P	S,FC,G,P,C	MM
Strong-Wilson	2007	EC		QL
Dillon et al	2006	P,S	SFC,G,	AR LR
Fletcher	2006	EC	S,G	QL
Louv	2006	P,S	P	LR
Peacock	2006	P,S	FC	QL
Taylor & Kuo	2006	P	S,P,W,U	QR
Thompson et al	2006	S	W	QL
Burkhardt et al	2007	P	W,C	MM
Rickinson et al	2004	P,S	S,FC,F,G,C	LR
Dillon et al	2003	EC,P,S	S,FC,F,G,C	LR
LTL	2003	S	S	QL
Malone & Tranter	2003	P	S	QL

Definitions
Educational level: EC Early childhood, P Primary S Secondary
Location: S Schoolgrounds, A Galleries, M Museums, FC Field Centres F Farms, G Gardens, P Parks/playgrounds, W Wilderness, CO Community, U Urban spaces, C Camp
Research: QT Quantitative, QL Qualitative, MM Mixed method, LR Literature review

Item 8: Children's responses

Author	Year	ECE	Location	Research
Chawla & Cushing	2007	EC,P,S	F,G	QT
Durlack & Weissburg	2007	P,S	M,CO	QT
Ernst & Monroe	2007	EC,P	P	QT
Farmer et al	2007	P	FC	QL
Gill	2007	E,P,S	G,P	LR
Graham & Robinson	2007	S	M	MM
Henderson & Antencio	2007	EC,P,S	M	LR
Hooper-Greenhill et al	2007	ECP,S	M	MM
Maller	2007	P	S,FC,G,P	MM
Scripp	2007	P	M	AR
Strong-Wilson	2007	EC	M	QL
Watson	2007	P,S	M	MM
Burnaford	2006	P,S	M	LR
Dillon et al	2006	P,S	S,FC,G	AR, LR
Farmer et al	2006	P	FC	QL

Fletcher	2006	EC	S,G	QL
Louv	2006	P,S	G,P,U	LR
Phillips	2006	EC,P,S	M	MM
Taylor & Kuo	2006	P	S,P,W.U	QT
Thompson et al	2006	S	W	QL
Burkhardt et al	2007	P	W,C	MM
Prezza et al	2005	P	U	MM
Böjrklid	2004	P	U	MM
Kruse & Card	2004	P	CO	QT
Rickinson	2004	S	S	AR
Rickinson et al	2004	P,S	S,FC,F,G,C	LR
Dillon et al	2003	EC,P,S	S,M,FC,F,G,C	LR
Kytta	2003	P	U	MM
LTL	2003	S	S	QL
Malone & Tranter	2003	P	S	QL
Bixler et al	2002	S	W	QT
Deasy	2002	P,S	A,M	MM LR
Prezza et al	2001	P	U	MM
Ratanapojnard	2001	P	S	QL
Chawla	1999	P,S	W	QL
Falk	1999	P,S	A,M	MM LR
Fiske	1999	P,S	A,M	QT
Skelly & Zajicek	1998	P	G	QT

Definitions
Educational level: EC Early childhood, P Primary S Secondary
Location: S Schoolgrounds, A Galleries, M Museums, FC Field Centres F Farms, G Gardens, P Parks/playgrounds, W Wilderness, CO Community, U Urban spaces, C Camp
Research: QT Quantitative, QL Qualitative, MM Mixed method, LR Literature review

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