

OUTDOOR PLAY

The Influence of Outdoor Play on Social and Cognitive Development

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May 2019

Introduction

There is converging evidence that repeated exposure to high quality, unstructured outdoor play opportunities has a positive impact on social and cognitive development. Quality outdoor play can present difficulties for parents and educators who may be used to high levels of supervision and instruction.¹

Subject

There has been a recent trend for educational contexts to reduce the amount of time children spend in unstructured outdoor play due to increased pressure for more direct instruction.² Simultaneously, heightened risk aversion,³ even outside of educational settings, results in fewer opportunities for independent outdoor play.⁴

Problems

The impact of reductions in opportunities for unstructured outdoor play may already be apparent⁵ and responsible for declines in creative thinking,⁶ reduced ability to get along with others⁷ and increased psychopathology.⁷

The majority of research has been conducted with pre-schoolers or school-aged children. Little is known about younger children.

Research Context

A significant focus of outdoor play research has been related to health outcomes, particularly factors such as physical activity and obesity that can be associated with lifelong chronic illness.^{8,5} There has been less research on cognitive and social outcomes and there is a lack of large scale high quality studies. Nonetheless, this is a growing area of research that includes researchers from multiple disciplines using a wide range of methods ranging from ethnographic studies to randomised controlled trials.

Key Research Questions

Major research questions in this area include:

- What is the relationship between outdoor play and cognitive development?
- What is the relationship between outdoor play and social development?
- Can outdoor play interventions help improve cognition and/or social development?

Recent Research Results

Outdoor play is thought to have an impact on physiological factors that underpin cognitive and social development. The strongest evidence relates to motor⁹ and visual development.¹⁰ Less is known about the development of the brain although studies from nonhuman species have found that play deprivation has a negative impact on cortical development.¹¹

The most promising research area involves the investigation of outdoor play and executive functions (EFs). EFs include cognitive processes such as inhibitory control, working memory and cognitive flexibility and are associated with positive academic and social outcomes.¹² There is evidence that aerobic exercise improves EFs¹³ and this would perhaps account for the relationship with outdoor play. However aerobic exercise alone does not seem to be sufficient. The physical

activity that is associated with aerobic exercise needs to be in the context of complexity, novelty and diversity to promote EFs.¹⁴ Research on pretend play and EFs has been found to be promising¹⁵ as has the Tools of the Mind curriculum which incorporates pretend play.¹⁶ While it is reasonable to assume that outdoor play involving physical activity and pretend play would be ideal for promoting EFs, the critical studies are yet to be conducted.

Human geographers and environmental psychologists have examined spatial understandings, in particular, how children remember and understand larger environments, such as neighbourhoods. Studies have identified associations between active travel/independent mobility and children's spatial knowledge.^{17,18} Primary school aged children have demonstrated better knowledge of home-school routes and objects encountered than children travelling in motorised vehicles. Independence of travel, way-finding and speed of travel (i.e., slow to observe details) have been considered important in developing children's spatial knowledge.¹⁷ A recent qualitative study of children's active travel to school found participants engaged in playful experiences including careful risk-taking, trying new routes, changing their journeys in increments and experimenting with new activities.¹⁹ These children were also found to show increased levels of social engagement and responsibilities such as looking out for peers and siblings.

One method of changing the outdoor play environment in primary schools has been to introduce loose parts play (LPP).^{8,20} LPP generally involves introduction of large objects with no obvious play purpose onto the playground.²¹ A systematic review indicated promise in the LPP approach to support social-emotional development, but more high quality work is needed and sensitivity of outcome measures could be improved.²² LPP research has generated some unexpected findings. For example, in a recent randomised controlled trial, children in the intervention group (i.e., had opportunities for LPP) were more likely to say they had been pushed/shoved on the playground, yet were less likely to report bullying, and were more likely to report being happy at school.²³ More research is needed, but these results suggest that children may be less intimidated by rough interactions when outdoor play involves loose parts.

The Millennium Cohort Study²⁴ has also revealed some associations with independent outdoor play that initially appear counterintuitive. Three important findings are that children with higher levels of independent outdoor play were: less pro-social, more likely to be from lower socioeconomic status backgrounds and living in close proximity to both family friends and family. The authors speculate that children who are more pro-social may spend more time helping others rather than engaging in independent outdoor play. They also argue that parents of children from lower

socioeconomic backgrounds may have different parenting styles, including allowing more independence, either by necessity or choice.

Research Gaps

To date, critical studies to help establish causality have not taken place although their need is recognized.²⁵⁻²⁷ Studies vary their definition of outdoors and play, and outcome measures for the same constructs vary considerably. Infants and very young children have not been participants in higher quality studies.

Information on gender or other individual differences is limited. There is evidence that changes in physical activity associated with changes in the outdoor school play environment are different for boys and girls.²⁸ There are also gender differences related to rough and tumble play²⁹ and pretend play.³⁰ It therefore seems likely that gender differences exist in the relationships between outdoor play, cognition and social development.

Not enough is known about the impact of natural environments in comparison to built environments. Available evidence suggests that natural environments provide children with more challenge³¹ and stress-buffering conditions^{32,33} that can be important for promoting cognitive and social development.

Conclusions

Although strong causal claims are not yet possible, there is enough evidence to recommend that children are offered opportunities for regular high-quality outdoor play. Ideally, outdoor play should involve changing conditions, such as found in nature, to encourage children to adapt and increase flexibility. It should allow for risk-taking and peer interactions. Opportunities for independent mobility appear to be important, particularly for school-aged children.

Implications for Parents, Services and Policy

As can be seen, research on outdoor play and its relationship to social and cognitive development has raised some unexpected findings. If a child is struggling with pre-academic tasks, engaging the child in more direct instruction may seem like common sense. Yet allowing the child time to engage in high quality, unstructured outdoor play is much more likely to support their academic and social skills by promoting development of EFs. Children who have the lowest levels of EFs gain the most from these types of experiences.³⁴ After examining the evidence, some schools

have introduced LPP.³⁵ Others have established ‘no homework’ policies and actively encourage outdoor play after school.^{36,37}

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