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Research for learning

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An exploration into the effects of the environment on children's play and the relationship with behaviour and development.

Section 1

Introduction

Play environments have had substantial changes in the past ten years, and the environmental factors, such as materials and settings in which play occurs, have contributed to how play is affected, according to Sutterby and Frost (2006).

Children's play is likely to differ when provided with different materials, such as when given Lego in a classroom in comparison to being given cars. Similarly, in spaces such as a large outdoor area, as opposed to a small corner in the classroom, play will often be different (Han, 2015). Therefore, this literature review explores the impact of environmental factors on children's learning and development and behaviour.

The Welsh government (2023) state the right of play and the effect the environment has on the development of the child. As it is policy, it indicates the significance that play has on the development of the child. Not only does it suggest the importance of play it also states how play also needs to be facilitated through the use of the correct materials, environment and knowledge.

Environment: outdoor vs indoor play

The different spaces of indoor and outdoor play can provide different forms of development for children. However, Koepp *et al* (2022) highlights the limitations that indoor play may have on physical development, suggesting that the space creates a barrier for children to move freely and engage in activities to increase physical skills. The research shows that behaviour in a classroom, after a physical exercise break, results in more concentration and engagement with classroom activities. It also showed that, after an hour of play which was not structured outside, concentration levels were increased in comparison to an hour of indoor play. Koepp *et al* (2022) further discuss the link to behaviour and outdoor activity in relation to rules. It is stated that usually there are fewer rules and barriers for children in outdoor environments, subsequently allowing self-regulation for behaviour, therefore indicating why, after outdoor physical activity, the behaviour is regulated in the classroom.

However, Waller *et al* (2010) argue that through having more time for indoor play and more opportunities to play with technology, research has shown an increase in engagement in critical thinking. This also includes children who have been said to have a shorter attention span; through the use of technology, they are more engaged.

Koepp *et al* (2022) and Waller *et al* (2010) highlight the benefits of outdoor and indoor play, respectively; however, they discuss different aspects of development, indicating that outdoor and indoor play aid the development of children in different ways.

Materials and motivation to play

Vickerius & Sandberg (2006) discusses the findings of Fröbel (1887) of how play is a key aspect of the child's development, as it not only provides happiness, but it also allows for independence. They further discuss through their own research that play is an important aspect of learning, as it is seen as 'fun' and children are more likely to interact and engage in something that they are interested in. Indicating the environment around them should be engaging and tailored to the child's interests to

allow for attraction to the play. Linnenbrink-Garcia *et al* (2016) also highlight the links between behaviour and engagement based on being intrinsically motivated. They outline the importance of the classroom environment on a child being intrinsically motivated. Having a setting which is structured, where children can make their own decisions and have activities that are within their capabilities may allow for the child to be engaged and willing to use the equipment provided.

Quilitch and Risley (1973) demonstrate through research that the toys that children are provided with within a classroom can provide or limit opportunities of social interaction. They found that children provided with social toys had a higher percentage of social interaction in comparison to children provided with non-social toys. This indicates that if the correct materials are provided within an environment, it can allow for increased opportunities of social interaction and, in effect problem solving skills, verbal skills, as well as social behaviour to be developed through play. However, more recent research done by Hazlehurst *et al* (2023) suggests that equipment provided did not impact the social interactions during break time. The research challenges previous research and found that being outdoors showed increased social behaviours and that the environment had more of an effect rather than the use of equipment. This links to Koepp *et al* (2022), who discuss the improved self-regulated behaviour in and after outdoor play, which may therefore allow for an increased level of social interaction through being self-regulated.

Overall, research shows that environment conditions such as settings and equipment influence behaviour and play. Koepp *et al* (2022) discusses the advantages and positive behavioural effects of outdoor play through children having the space to self-regulate. Whereas Waller *et al* (2010) highlight the impact of indoor play and the link to increased engagement through the use of technology and improvement of critical thinking. Both Vickerius & Sandberg (2006) and Linnenbrink-Garcia *et al* (2016) highlight the importance of the environment being structured for the child's interest to allow for intrinsic motivation. Quilitch and Risley (1973) states the effects that social and non-social toys have on interactions between children; however, more recent

research by Hazlehurst *et al* (2023) contradicts the research and suggest that equipment does not affect social interaction, particularly when looking at break time. Further research may allow for more understanding of the role environmental factors have in children's play and behaviour.

Section Two- Method

Sample

The sample for the research consists of 48 children from the ages of 5 – 7 in the years 1 and two, across 4 different schools. The children were each split into groups of 4 when observing behaviours to allow for effective observations. It also includes 15 professional practitioners, including teachers and teaching assistants interviewed three times in semi-structured interviews. The sample selection of the practitioners worked within the same setting of the group of children observed. Both indoor and outdoor environments were used in each setting, along with different materials and equipment to explore the effects of the environment on the play and behaviour. The selected age group was deemed appropriate for the topic research as well as the use of indoor and outdoor settings.

For participants and sample size, non-probability convenience sampling was used. Non-probability research is usually used for small sample research, which in effect is usually straightforward and time efficient to set up (Cohen, Manion and Morrison, 2018). Therefore, the sample sizes of the groups for observation were small as well as the number of participants for the interviews. Convenience sampling aided ethics within the research, as participants were chosen based on agreement to participate, instead of random selection which could potentially lead to peer pressure or feeling they are required to participate (Cohen, Manion and Morrison, 2018).

Method

The research followed a triangulation approach where both observations and interviews were used. The use of methods is qualitative data collection, where experiences and understanding are conveyed through use of words instead of

quantitative methods, which is use of numbers (Cohen, Manion and Morrison, 2018). The use of words was deemed more appropriate to capture behaviour and emotions in comparison to numbers. The use of semi-structured interviews creates an opportunity for open-ended discussions, enabling participants to give more detailed responses to knowledge on the topic. Also, allowing trust to be built through professional relationships and potentially gaining trust to give a true reflection on opinions and knowledge (Winwood, 2019). Each participant was interviewed in-person 3 times using a semi-structured approach to allow for flexibility and open-endedness although, this did come with limitations of being time-consuming.

Observation is defined by Cowie (2009) to be intentionally paying attention and making notes of participants' behaviour within an environment. Through the research, participants were observed in their natural everyday environments, and the observer analysed behaviour in different environments through monitoring interactions (Cohen, Manion and Morrison, 2018). The observer also a non-participant to prevent bias and is seen as an effective way to observe social situations and interactions (Martinez Barrios *et al* , 2024). The participants were observed in both their natural indoor and outdoor environments, analysing the effects the environment has on behaviour. Field notes were used during observations to make note of interactions and behaviours, which is a common use of recording through qualitative data (Hellesø, Melby and Hauge, 2015). Therefore, the methods of interviews and observation for the approach used alongside each other to not only receive professional knowledge from participants, but to also to observe the behaviours and compare.

Research method: Interviews and observations

Semi structured interviews were a tool used for the research as it allowed an open-ended response along with flexibility and opportunity for further detail in comparison to other qualitative data collection methods. An interview is also usually a situation in which the professional participants have previously been involved in, such as job interviews, and therefore may respond calmly due to previous experiences. Through

doing semi-structured which are flexible and less formal this approach would aid the relaxed interview process (Winwood, 2019). The interviews were also conducted in-person this was decided to create opportunities of observation of physical points and not just verbal. Adeoye-Olatunde and Olenik (2021) outline the benefit of in person interviewing to show potential contrasting effects of a question on physical and verbal reaction, potentially effecting the data. The use of practitioners from within the settings was deemed appropriate due to practitioners continually observing children and behaviour in the class (Rozsahegyi, 2019), therefore implying they will have a well-formed understanding of the behaviours that will be observed.

Observations as non-participants were the other tool applied to the research, to allow for an uninterrupted and regular environment to prevent changes in behaviour, while also allowing for an in-depth view of situations (Rozsahegyi, 2019). Observations are seen to allow observers to gain a better understanding of behaviour and actions through seeing it from the child's perspective. For the research observation, therefore was appropriate as it allowed the observer to follow and watch the child's play closely and observe what they were interested in and motivated them and what they were not, and how this would change the behaviour (Brodie, 2013).

Although observations and interviews are the chosen methods, there are limitations. Both use of methods chosen are qualitative data collect and Cohen, Manion and Morrison (2018) highlight that the data can be unreliable due to being participants potentially only being focused in one area and therefore bias or purposefully not mentioning other information when undergoing an interview. To prevent invalid and unreliable data the triangulation method was used (discussed further on in triangulation).

Another limitation of the research method in particularly observation, is a limitation called the Hawthorne effect. This occurs when participants' actions, reactions or the way in which they behave changes due to being observed (Oswald, Sherratt and Smith, 2014). Therefore, indicating the complexity of gaining knowledge into behaviours. Cohen, Manion and Morrison (2018) further highlight the effects of being

a participant in research can create potential bias, as participants are aware of the role of the research and can sway to what they deem appropriate. To prevent the effect, interviews were done in a calm and familiar environment to the interviewees and children were observed by a non-participant whilst in natural environments to prevent disturbing the children.

The halo effect explains deeper the effects on bias within researchers. The halo effect is described as a one-sided approach and can mean researchers make assumptions based on one attribute rather than obtaining the knowledge through actual observation (Gabrieli *et al*, 2021). Cohen, Manion and Morrison (2018) additionally state that pre-known information could be used when researching and say that usually only the positive effects are seen and negative aspects are missed or even disregarded. Whereas the Horn effect is argued that the researcher ignores the positives and focuses on negative aspects.

Interviews were the research approach selected to gain insight and knowledge from practitioners. This method was chosen instead of surveys, as although Cohen, Manion and Morrison (2018) discuss that a survey allows for large data collection that is quantitative, it does not allow for open-ended questions and is rigid data collection, preventing discussion of deeper knowledge and information, when referencing Hochschild (2009). Therefore, through this research, it would have been an unsuitable method. Cohen, Manion and Morrison (2018) also highlight another limitation of the use of surveys, that participants are likely to answer based on what they deem socially acceptable, and therefore may not be a true reflection.

Use of triangulation

Triangulation through research is the use of different data and comparing to gain more knowledge from the research. Through using the triangulation method, it can contribute to the credibility of the research, whilst allowing for a variety of evidence to be compared and analysed. Considering different angles of the topic could strengthen the evidence found through research and provide further understanding (Roberts-Holmes, 2018). Therefore, in the methodology, triangulation has been used

to allow for a practitioner viewpoint and professional knowledge to be shared through interviews, alongside collecting observational sources to compare and provide additional information.

Conclusion

In conclusion, the research used qualitative methods of non-participant observation and semi-structured interviews to explore the effects of the environment on children's play, behaviour and development. The use of two methods created a triangulation approach to prevent invalid and unreliable results (Roberts-Holmes, 2018). The two methods used were relevant to the research topic as the interviews provided professional knowledge and experience whereas, the observation provided direct results. Limitations of the methods were assessed and acknowledged to potentially distort the results through change in behaviour when being observed and bias interview answers. To decrease the limitations, non-participant observations were used in natural environments to cause the least distraction and interruption when observing. Interviews were taken place in a calm, familiar environment to aid comfort for genuine and precise answers.

Section 3 -Ethics

Gaining consent

Consent of participation in research is a vital aspect, and research should not be done unless a participant has agreed and consented to the process. Consent allows researchers to use participants information through the willingness and trust of the individuals. When receiving consent, it is highlighted that the participant should be given space as well as time to analyse the information they have been provided with to make an informed decision (Mandal and Parija, 2014). As the research included not only adult participants but also child participants, assent was needed. Children are deemed vulnerable and not yet developmentally mature to make informed decisions by themselves therefore, consent was needed to be provided by their guardians. As well as consent the children were able to assent, which allowed the

children to also provide their own authority and make decisions on whether they would like to participate, which could simply be by nodding or shaking their head or saying 'yes' or 'no' (Spriggs, 2023). Springs also states the positive effect that allowing children consent provides, not only is it a right for children to be listen to and respected, the children also benefit through understanding they can voice their opinions and the process of the research. Assent was only an option for children whose guardians had also confirmed consent to participate in the research.

Confidentiality and anonymity

Confidential data is stated to be data which an individual deems private and personal and therefore wants to keep it non-public (Bos, 2020). He further discusses the importance of protecting private data as it is a participant's right. Informed consent is seen as a key tool for aiding confidentiality when carrying out research and is a process with the concept of participation in the research, which should not cause harm and will follow the rights of the participant (Bos, 2020). For the purpose of this research the informed consent information contained; Details of the researcher, the aims and purposes of the research, the research methods and processes the participants will be exposed to, what potential risks may be involved, terms of compensation if required, duration of research, details of confidentiality, security and data protection, legal and fundamental rights of the participants (stop participating at any stage, access to results, check data) This was based off Bos (2020) stating the usual information provided in informed consent forms. Although Bos (2020) highlights the connection of confidentiality and anonymity, it is discussed that anonymity focuses on the individual's participation in the research identity is unknown, and the information provided through the individuals would not be linked to them.

Risks

Through all research, ethical risks are evaluated, and they should be significantly outweighed by the benefits (Artal and Rubenfeld, 2017). Therefore, the below

outlines the potential risks identified of the research carried out and the prevention methods to reduce the risks.

Risks to participant

Parental consent was required for the children who were participating in the research. However, this was a potential ethical risk as the children whose guardians allowed consent may have felt pressured into participating. UNCRC article 12 states 'I have the right to be listened to and taken seriously' , therefore, this could have affected this right, as the decision for the child to participate was taken away from them and their opinion was not accounted for. However, to reduce the issue, we also obtained assent from the children to ensure they were aware of the research and what it entailed. Only children whose parents provided consent as well as giving assent, were selected for the study.

Another potential risk identified for the child participants were emotional distress through change of environment and situations, as the research involved studying the change in behaviour through different environments. With also the concern of practitioners delaying intervention through being aware of the observations occurring. To reduce the risk, the observations were carried out in the natural environments with non-participation to the children and practitioners were made aware that the child's well-being as well as safety should still be the main objective, therefore, to intervene whenever deemed appropriate.

Additionally, participants involved in the interviews may have been concerned about the confidentiality and anonymity of the research, which would be an ethical concern. Therefore, the participants were provided with informed consent forms which included details of how the data was going to be used and stored securely this allowed for transparency and for the participants to be made aware of everything (Bos 2020). Along with information of anonymity, stating personal information would not be noted or logged for the research.

Participants of research have the right to withdraw from the research at any time, as well as the data that they have provided (BERA,2018). Therefore, this was a potential ethical risk identified. To reduce the risk all participants were informed of their right to withdraw at any time in the research. They were also informed there would not be any questions asked if they made the decision to withdraw, and there would be no attempt of incentive or persuasion.

As discussed previously, all research includes risks, and therefore, potential harm could be caused to participants. This potential ethical harm was reduced through examining the potential risks in advance and putting appropriate precautions in place. All risk information was disclosed to the participants, so they were well informed before consenting(BERA, 2018).

Risks to the researcher

Throughout the research, there were also possible ethical issues to arise from the perspective of the researcher. The research carried out was qualitative research and could be subject to biased observation. To prevent this from occurring the environment in which observations were carried out were conducted in the natural environment, and therefore, nothing was set up to sway the children to behave in a certain way. All observations were also recorded objectively to reduce subjectivity within the research. BERA (2024) discusses the fundamental aspect of researchers carrying out reflexively and critically making ethical decisions during research. The researchers were also following the UWTSD (2025) policy on research integrity and ethics, which states the researcher must maintain integrity throughout all parts of the research.

Another aspect that was noted as a potential risk to the researchers was safeguarding, as the research would include children's participants. The research followed the UWTSD (2025) policy on research integrity and ethics therefore reducing the risk. The ethical issue was reduced as all researchers were required to complete the Disclosure and Barring Services check and receive the certificate. The

check allows personal and sensitive information to be disclosed to decide if the adult is appropriate to work with the children.

A further risk was mental health risks, which could have occurred through stressful work of watching children's behaviours, which could potentially be emotionally draining. UWTSD (2025) states that before carrying out any research project, 'activity hazards' should be considered, and therefore, before the research was carried out, the risk was identified. Appropriate measurements were set such as check ins with tutors as well as after each observation a small break to protect well-being.

Risks to the university

Risks to the university were also identified, such as the reputation of the university, compensation claims, and misconduct of research. To prevent the ethical issue of the university's reputation, UWTSD (2025) highlights that research being conducted through the university must be reviewed and approved before being started this ensures it is appropriate and does not reflect negatively on the university through complying ethically. If an accident occurs when undergoing research, claims may be made against the university for compensation. UWTSD (2025) policy reduces the ethical concern through having appropriate insurance in place which can cover claims if necessary. Although research may be approved by the university, misconduct can still occur. Therefore, UWTSD (2025) policy includes misconduct process and disciplinary actions that will be applied if the ethical principles are not followed.

The risks highlighted above for participants, researchers, and the university are not exhaustive of all potential risks identified, however they are the main areas of ethical concerns identified from the research.

GDPR & Data protection

All research carried out must follow the Data protection acts and GDPR (BERA, 2018). The research implemented these through following the ethical guidelines of

BERA (2018) as well as the UWTSD (2025) research integrity and ethical policies. Data protection act (2018) is described as securely keeping personal information, and the research carried out had measurement in place to follow the act. All information acquired from participants was available to the individual, and the data that was acquired was stored securely and privately. The data was secured correctly through having passwords to all devices that contain the data, along with data encryption. The data was also not shared through ways subject to hacking and instead transferred securely. GDPR was also followed through all data being kept anonymous with personal data such as names and addresses not noted, this allowed for anonymity to be maintained. All data that was acquired was for the purpose of the research and followed the UWTSD (2025) policy.

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