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'Every child, every day': a study of Year 5 and 6 children's perspectives on the contribution of The Daily Mile™ initiative to classroom-based learning

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Abstract

Amongst a context of global rising obesity and inactivity levels, the responsibility to address children's physical health is increasingly falling to schools. While The Daily Mile™ walk-run initiative promises to address children's inactivity, and offers a plethora of additional benefits, researchers have reached varied conclusions over its efficacy. This small-scale, mixed methods case study proposal aims to examine children's opinions towards The Daily Mile; in particular, whether children believe the initiative has had any noticeable effect on their focus (cognition) or attainment. By considering the perspectives of those completing the physical activity initiative, this study proposes to make a valuable contribution to the emerging research field of physical activity and cognitive health.

'Every child, every day': a study of Year 5 and 6 children's perspectives on the contribution of The Daily Mile™ initiative to classroom-based learning

Emily Davenport

Introduction

In 2012, headteacher Elaine Wyllie introduced a daily 15-minute walk/run classroom break at St Ninian's Primary School, Stirling, aiming to improve the overall fitness of her pupils. Fast forward 12 years to 2024, and The Daily Mile (TDM)™ is a global physical activity initiative, with over 4.8 million children participating every school day across 95 countries. Credited with simple core principles, easy implementation and flexibility (Dring et al., 2022), The Daily Mile™ has also received attention at the highest levels of government; being rolled out nationwide in Scotland, and recommended for all UK primary schools by the Department of Health and Social Care (Morris et al., 2019). Avid supporters of TDM include my mother, a teacher who introduced it to her own class, which established my interest in the initiative.

Despite being developed as an intervention to reduce inactivity, the claimed benefits of TDM are much broader; the initiative is alleged to improve focus, concentration, wellbeing, memory and academic performance, as well as reduce body fat and anxiety (TDM, 2024). However, mixed results have been found by researchers investigating the effectiveness of TDM against these publicised benefits (Dring et al., 2022). These unclear results, in addition to my family link, sparked my interest in focusing my research on TDM, especially given its widespread adoption in schools.

This paper proposes a small-scale research project, where I will seek to gain an insight into pupil perspectives of TDM. My research will be specifically related to TDM's claimed cognitive benefits; after completing my literature review, I found that the research on TDM and cognition is particularly ambiguous (Brustio, 2023); I was keen to explore this relationship for myself, consequently refining my research focus. Although the results of this study will not be generalisable, my goal is to gain a

better understanding of whether children, as participants of TDM, think the initiative affects their learning.

I will explore pupil perspectives using the following research question (RQ):

RQ: To what extent do children view the implementation of TDM initiative as having an effect on their learning in the classroom?

This research question will be examined in terms of the following sub-questions (SQs):

SQ1 Focus and cognition: Whether children think TDM influences their ability to focus in the classroom and process information.

SQ2 Attainment: Whether children think TDM influences their classroom attainment and progress.

This paper will first survey existing literature on physical activity and health, before specifically considering TDM and its claimed benefits. The proposed research design (a small-scale case study using mixed methods) will then be discussed and justified, and ethical considerations will be explained. Finally, I will reflect on the implications of completing this project proposal for my own future teaching practice.

Literature Review

Existing research surrounding the effect of physical activity interventions, including TDM, on children, is in its infancy (Donnelly et al., 2016). Although the scope of this research proposal is limited, this literature review will offer a critical analysis of existing academic material, documenting what is known about the topic thus far (Machi & McEvoy, 2024). As well as highlighting emerging themes and examining the future direction of physical activity intervention research, this review will also provide a rationale for this specific project focus, namely examining children's perspectives on TDM.

Physical Activity

The need for children's engagement in regular physical activity

Children today are leading increasingly inactive, or sedentary, lifestyles, and are on average more unfit than previous generations (Bidzan-Bluma & Lipowska, 2018; Hillman et al., 2008). This worldwide trend of shortfalls in children's physical activity (Ram et al., 2021) is being observed in the UK; despite the World Health Organisation and UK Government recommending children do at least 60 minutes of moderate-to-vigorous physical activity (MVPA) daily, 77% of boys and 80% of girls aged 5-15 do not meet this goal (Dring et al., 2022). In fact, less than two-thirds of children accumulate 30 minutes of daily MVPA (Venkatraman et al., 2021). Several factors are thought to be to blame for the increasingly inactive child population, including the rise in popularity of new technology (Bidzan-Bluma & Lipowska, 2018). These physical activity shortfalls are recognised as having significant public health implications; inactivity has been identified as the "fourth leading risk factor for global mortality" (World Health Organisation [WHO], 2010). Physical inactivity has also been linked to the earlier onset of chronic, non-communicable diseases, and is associated with negative health outcomes including cardiovascular disease, diabetes, depression and raised blood pressure (Ryde et al., 2018; WHO, 2010). As well as inactivity raising the risk of children developing future diseases, sedentary behaviour is also clearly linked to obesity, with 1/5 of children worldwide reported as overweight or obese (Breheny et al., 2020). Given that childhood represents an "important window" for identifying health risk factors and intervening to prevent later problems (Arkesteyn et al., 2022, p.361), and that physical activity is generally correlated with good health, it can be concluded that new and innovative strategies are required to ensure that children engage in sufficient amounts of physical activity (Donnelly et al., 2016).

The role of schools to facilitate physical activity

In an environment characterised by severe shortfalls in children's physical activity levels, the school plays an important role. Despite classroom lessons being unsurprisingly sedentary and therefore not conducive to promoting physical activity (Daly-Smith et al., 2018), schools can address physical activity levels during the school day, simultaneously reaching many children from different backgrounds (Brustio, 2023; Ram et al., 2021). Schools therefore have a vital opportunity to positively impact children's daily activity levels through interventions (Anico et al., 2022).

TDM as an example of a school-based physical activity intervention

A physical activity intervention is defined as an initiative delivered with the intention of disrupting sedentary behaviour (Booth et al., 2020), by increasing physical activity levels amongst participants (Donnelly & Lambourne, 2011). One such 'in vogue' physical activity intervention is TDM, which involves children and their teachers running/walking outside for approximately 15 minutes every school day, irrespective of the weather (Booth et al., 2020). Importantly, TDM is categorised as a classroom break, not as a PE lesson (Dring et al., 2022). TDM's key principles have resulted in praise for it offering a "flexible and straightforward" way to encourage physical activity (Anico et al., 2022, p.2252), as well as being inclusive (Hatch et al., 2021). TDM has become a household name within physical activity interventions, amassing a huge uptake of 19,000 nurseries and schools (TDM, 2024). As previously discussed, the intervention also has support amongst policymakers, having received £1.5 million of Sport England's National Lottery Funding (Anico et al., 2022; Morris et al., 2019; Ryde et al., 2018). TDM organisation cite the initiative as having substantial and wide-ranging health benefits for children, positively impacting their "physical health, mental health and wellbeing, and their learning" (TDM, 2024). However, despite its widespread adoption, the picture amongst researchers regarding the efficacy of TDM is inconsistent (Booth et al., 2020), with suggestions that its claimed benefits are at the very least unsubstantiated, and potentially limited (Morris et al., 2019). This disconnect certainly makes the topic of physical activity interventions an interesting one to study as a researcher.

Physical Activity Interventions and Health

Physical activity interventions and children's physical/mental health

It is widely accepted that frequent activity "substantially [enhances]" children's physical fitness and health (WHO, 2010), having a positive impact on the motor, cardiovascular, respiratory, hormonal and nervous systems (Bidzan-Bluma & Lipowska, 2018). As a relatively new physical activity initiative, academic research about TDM, as well as physical activity more generally, is in its early stages compared to other scientific fields (Donnelly et al., 2016). The dominant focus of research conducted so far has been evaluating the initiative's links to children's physical health. TDM organisation cites multiple participatory physical health benefits, including increased fitness, heart health, muscle strength, and a reduction in body fat (TDM, 2024). Several scholars describe the

relationship between participation in TDM and physical fitness, defined in terms of cardiorespiratory fitness and muscular strength (WHO, 2010), as positively correlated. In two similarly designed quasi-experimental studies, where children participated in TDM for multiple weeks, both Dring et al. (2022) and Brustio et al. (2020) found clinically significant improvements in primary children's cardiorespiratory fitness, measured using a multi-stage fitness test and a 6-minute run test respectively. This positive relationship was also demonstrated in a randomised control trial with a sample of 700 children, finding that children's aerobic fitness increased after completing TDM 12 weeks (de Jonge et al., 2020). There is therefore a growing evidence base that suggests TDM has positive effects on children's physical fitness (Arkesteyn et al., 2022; Venkatraman et al., 2021).

However, the picture when examining TDM's impact on other areas of children's health is more mixed. For example, claims that participation decreases body fat (TDM, 2024) has had contrasting findings: the previously discussed quasi-experimental studies by Dring et al. (2022) and Brustio et al. (2020) found no significant link between participation in TDM and Body Mass Index (BMI), or body composition. These results are supported by the findings of Breheny et al., (2020) who conducted a randomised control trial with 40 schools, and Brustio et al. (2019), who ran a quasi-experimental baseline/post-test study with 800 Italian children – both studies concluded that TDM had no significant effects on BMI. Venkatraman et al. (2021) also concluded that evidence suggesting that TDM is linked to maintaining a healthy weight is limited. However, some researchers have come to very different conclusions. TDM organisation cites the work of Marques et al. (2016) and Janssen and Leblanc (2010), who through a cross-sectional study with 510 children, and a systematic review, both concluded that physical activity is associated with health benefits including body fat reduction. It is however important to note that these studies did not directly look at the effects of TDM initiative, but physical activity more generally. After a quasi-experimental pilot study with 279 participants, Chesham et al. (2018) found significant improvements in participants' body composition, having measured changes in BMI and skinfolds, concluding that TDM is indeed beneficial for children's physical composition and weight. Therefore, there is certainly a mixed picture regarding the efficacy of TDM for children's physical health, being highly dependent on how 'health' is defined.

There is also ambiguity surrounding TDM's effects on mental health. TDM organisation (2024) argue that the initiative decreases anxiety and increases confidence; a claim which is supported by Arkesteyn et al. (2022), who measured 500 children's responses to Self-Perception Profiles before and after completing TDM. Booth et al. (2020) also measured 5000 responses to the Children's

Feeling Scale and Felt Arousal Scale, concluding that TDM improves wellbeing in comparison to other activities. However, whilst these findings are promising, more research is needed into the area (Arkesteyn et al., 2022), which is particularly necessary given that other researchers have argued TDM has no significant effect on wellbeing (Breheny et al., 2020).

Physical activity interventions and children's cognitive health

The proponents of TDM argue that its benefits reach far beyond children's physical health (Hatch et al., 2021); the initiative is also promoted as improving focus, concentration and mathematical problem-solving skills (TDM, 2024). Cognitive health is a broad concept, which can be measured in terms of executive functions: inhibitory control (self-control and self-regulation), working memory and cognitive flexibility (Diamond & Lee, 2011; Morris et al., 2019). A link between physical activity and cognition has been theorised since the Ancient Greeks, although scientific investigation on the subject did not begin until the 1930s (Hillman et al., 2008). Hypothesised explanations for exercise improving cognitive health include that it (1) increases blood and oxygen flow to the brain, (2) increases endorphins and therefore mood, and (3) encourages the growth of new nerve cells which support synapses (Singh et al., 2012).

Despite there being a theorised link between physical activity and cognitive health, research has resulted in mixed findings (Dring et al., 2022); this reliance on ambiguous data and lack of verified evidence (Thorburn, 2020) is worrying because "policymakers and schools are currently implementing TDM without a full understanding of the acute effects on subsequent cognition in the classroom" (Hatch et al., 2021, p.2). There are also suggestions that conclusions are dependent on the research design of studies (Donnelly & Lambourne, 2011; Hatch et al., 2021). More rigorous research is thus evidently needed to better understand the effects of physical activity initiatives on cognition (Morris et al., 2019), which provides a clear justification for my proposed research focus.

There are several studies that describe the relationship between physical activity and cognitive health as positively correlated. In an experiment with 300 children of different ages, Mualem et al. (2018) found that 10 minutes of exercise resulted in significant improvements in memory, feature-detection (attention) and mathematics tests. Booth et al. (2020) similarly found that taking part in 15 minutes of self-paced activity was beneficial for cognition, which was measured in 5463 children using computer programmes, when compared to sitting, standing or running to near exhaustion. Therefore, initiatives such as TDM are seen as a worthwhile break from traditional classroom-based learning

(Booth et al., 2020). This link has also been suggested in systematic reviews, with physical activity seen as having a positive effect on multiple aspects of brain function and cognition (Hillman et al., 2008), including cognitive flexibility, creativity and focus (Diamond & Lee, 2011), and additionally the neural network, which supports executive function (Donnelly et al., 2016). Given that motor skills are still developing in late childhood, cognitive health is especially important to foster, and therefore schools play a vital role in encouraging its development (Bidzan-Bluma & Lipowska, 2018).

However, there is also a body of research that challenges the suggested relationship between physical activity and cognition. Dring et al.'s (2022) quasi-experimental study measured children's performance on cognitive function tests (including the Stroop test, Sternberg paradigm and Flanker task) before and after completing 5 weeks of TDM. Although they found improvements in inhibitory control among participants, no effect was seen in terms of working memory or attention (Dring et al., 2022). Similar findings were discovered in Morris et al.'s (2019) randomised control trial with 442 pupils, which found no change in executive functions (measured through tests and tasks including Trail Making; Digit Recall; Flanker; and Animal Stroop). These inconsistent results certainly suggest that further research is needed to clarify the relationship between physical activity and cognition (Dring et al., 2022), providing a rationale behind my project; I am keen to further investigate links between physical activity interventions and different cognitive aspects.

Physical activity interventions and children's academic achievement

TDM organisation also argue that because the intervention enhances cognitive health, it subsequently improves academic attainment, specifically in maths (TDM, 2024). However, much like the relationship between physical interventions and cognition, the picture within research is ambiguous (Brustio, 2023), with some going as far as claiming that TDM is operating based on unsupported claims of academic improvement (Thorburn, 2020). Using an experimental study with 96 students, Howie et al. (2014) found that 10-20 minute classroom exercise breaks moderately improved maths performance, whilst Fedewa and Ahn (2011) similarly found physical activity was positively correlated with mathematic results, as well as children's IQ and reading scores. Morris et al. (2019) also observed a small increase in maths fluency scores after completing TDM for 5 weeks, however this result was statistically insignificant. Donnelly et al. (2016) argue that there is no evidence classroom physical activity breaks result in better academic achievement. The relationship between physical activity and cognitive health is thus certainly unclear. As mentioned previously, study design

has been argued to affect results; whilst cross sectional and longitudinal studies often suggest a link between physical activity and academic performance, controlled experiments have yielded more mixed results (Donnelly et al., 2016). In addition, Donnelly et al. (2016) note that academic performance is often inconsistently measured, as well as that other variables (such as nutrition) are not always accounted for, potentially impacting findings. Researchers have called for more high-quality studies to be conducted to fully assess the relationship between physical activity interventions and academic achievement (Hatch et al., 2021; Singh et al., 2012), to fully validate any suggested links (Donnelly et al., 2016), again providing a clear rationale behind my project.

Perspectives on TDM as a Physical Activity Intervention in Schools

Teacher perspectives on TDM

Teacher perspectives on TDM have been considered within a few pieces of existing research, specifically focusing on the perceived challenges and benefits that the intervention offers. Ryde et al. (2018) and Malden and Doi (2019) both conducted semi-structured interviews with teachers and other school staff regarding TDM. Perceived benefits of the intervention were included in interviews, teachers were positive overall about TDM's simple core components and flexibility (Ryde et al., 2018). Teachers also perceived a positive relationship between TDM and children's health – both in terms of their physical and cognitive fitness, with better observed classroom concentration levels (Malden & Doi, 2019). This is interesting to consider given the mixed picture within research; suggesting that although TDM may not have any scientifically significant cognitive benefits, a placebo-type effect may be present. It was also concluded that several common barriers challenged the effective implementation of TDM across schools, including inadequate running surfaces, and perceived time constraints within the school day, especially where teachers are not given the flexibility to choose when TDM takes place (Malden & Doi, 2019; Ryde et al., 2018).

Student perspectives on TDM

Despite children being the participants of TDM, they are infrequently asked for their opinions on the physical activity intervention by researchers. However, these opinions are clearly essential as children's enjoyment levels will influence their effort in an activity (Hatch et al., 2021). After a thorough survey of existing literature, I was only able to find one study that considered children's

perspectives. As well as comparing changes in their cognitive health, Hatch et al. (2021) formed two focus groups (of 87 children in total) to discuss children's opinions on TDM, considering factors including their enjoyment of the intervention. They concluded that children enjoyed participating in TDM overall, because it gets them outdoors, is sociable and is self-paced, although its repetitive nature occasionally made it boring (Hatch et al., 2021). Despite this research proving promising, its conclusions clearly need to be replicated, with calls amongst academics for future research to examine pupil perspectives on their experience of TDM (Morris et al., 2019; Thorburn, 2020), demonstrating a gap which my project could help address. In addition, Hatch et al. specifically call for future studies to "examine the chronic effects of participation in TDM on children's cognition, which remain unknown" (2021, p.11). This has provided a clear justification for my research focus; children's perspectives on TDM generally, as well as specifically in terms of its relationship to cognition, have yet to be examined in any significant depth, providing an opportunity for this study to contribute to the research field.

Methodology

This section will present and outline my specific research approach, and how I plan to gather and analyse data. The data collected will address the previously stated Research Question which is reiterated here: To what extent do children view the implementation of TDM initiative as having an effect on their learning in the classroom? This work will be done in terms of: (a) Focus and cognition (SQ1) and (b) Attainment (SQ2).

Research Design

This research will be completed using a mixed methods case study approach. A mixed methods approach, which involves "combining qualitative and quantitative methods", has been selected as it provides a more complete picture of what is being studied than a single-method approach, by triangulating data (Lund, 2012, p.156). In this research project, quantitative data will be gathered using a questionnaire, whilst qualitative data will be taken from a group interview of pupils.

The data will be gathered from a single case study. Also known as an intensive approach, this form of research focuses on only one or a few instances of a phenomenon to "study [it] in depth" (Sawborn, 2010, p.2). Case studies can be defined by time, geographical parameters, boundaries or group

characteristics (Cohen et al., 2007); in the case of my research project, my case study will be one class within a Cambridgeshire primary school. There are several advantages to a case study approach which informed my choice, including that research can be undertaken by a single researcher, and has a holistic approach, capturing unique features which may be lost in large scale research (Cohen et al., 2007). Whilst the research carried out in my project may have limited generalisability alone (as is characteristic of single case studies), it has the potential to contribute to a growing pool of data on TDM, and therefore is a valid form of research (Cohen et al., 2007).

Case study context and sample

Research for this project will be carried out in a school in South Cambridgeshire, which has a 1.5 form entry and approximately 300 pupils. One mixed Year 5/6 class will form the sample for this project. The class contains 31 pupils, who are aged between 9 and 11 years old; there are 16 Year 5 pupils and 15 Year 6 pupils. The school has adequate outdoor space which will be suitable for TDM to be completed regardless of weather conditions. I have selected this age group to form my sample because, being at the top end of the school, Year 5/6 pupils are more likely than their younger peers to be able to reflect on their own classroom learning, and recognise if it is changing.

Questionnaires

Questionnaires, which consist of a list of written questions, are designed "to collect information" related to the specific area of research being studied (Denscombe, 2017, p.183). In my study, two self-completion questionnaires will be distributed amongst research participants, and will be completed by all pupils who have consented; Questionnaire 1 at the start of term before beginning TDM challenge (Phase 1), and then Questionnaire 2 at the end of the research period (Phase 2). These two questionnaires (reproduced in Appendix 1) will create quantitative data. Each questionnaire contains 6 questions, the majority of which are closed questions with single rating scales, that will take respondents approximately 10 minutes to complete.

In designing my two questionnaires, I have followed the recommendations set out by existing researchers, to ensure that the completion rate is high, and thus that responses are valid (Denscombe, 2017). Most of my questions are closed, which allow answers to be standardised, and therefore meaningfully compared and analysed (Denscombe, 2017; Foddy, 1993). Most questions were designed with single rating scales, allowing respondents to indicate the strength of their attitudes

towards a statement or question (Foddy, 1993), using happy/sad scales, a number line, and in several cases the Likert scale (strongly agree/agree etc.). I also ensured that questions had a 'don't know' or neutral option, to avoid pupils randomly picking a response (Foddy, 1993). Whilst closed questions are useful, they can also have drawbacks, including that they produce answers which are too structured, losing their so-called 'human quality' (Denscombe, 2017). It is therefore important to also consider open questions when designing questionnaires (O'Reilly & Dogra, 2017); consequently, I have included an open section at the end of each questionnaire, allowing respondents to express their thoughts on TDM in their own words (Foddy, 1993). As will be explored in greater detail in my ethics section, the introduction to the questionnaire reiterates to pupils the purpose of the study, as well as emphasising that they are able to withdraw at any time, linking to the principle of informed consent (Cohen et al., 2007).

Additionally, I have ensured that questions are simple and specific, avoiding ambiguity, leading or hypothetical questions (Cohen et al., 2007; Williams, 2003). The selection of a relatively small number of questions in each questionnaire was deliberate, aiming to reduce duplication of answers as well as mental effort, hopefully resulting in a higher response rate (Denscombe, 2017). In terms of questionnaire layout, I have considered the importance of designing something that is simple and user friendly, to reduce barriers to completion (Cohen et al., 2007). The questions are written in a large font size to make them easier to read, are separated by a line, and clear instructions are given to encourage a higher response rate (Williams, 2003). Visual prompts are also included to increase question accessibility.

Questionnaires are certainly a valuable form of data collection, that informed my choice of them for this research project; questionnaires are economical, easy to arrange and have standardised questions (Denscombe, 2017). However, because they are self-completed, it is difficult for a researcher to verify whether individual responses are reliable; this is a caveat that I will bear in mind when analysing and discussing my research findings (Denscombe, 2017). It is also important to note that given the relatively small size of my case study sample, the quantitative data gathered, whilst insightful, cannot itself be indicative of a greater, nationwide trend.

Group interviews

My research will also involve two semi-structured group interviews, which will create qualitative data. In terms of selecting a sample for this small-scale project, 5 or 6 participants will be chosen at

random from the class (excluding those who have not consented to the project). These participants will complete two group interviews, one in Phase 1 and the second in Phase 2 of the study. Each interview will last approximately 30 minutes. Research interviews are a data collection method where people exchange their views on a subject (Cohen et al., 2007), that help elicit their "opinions, feelings, emotions and experiences" (Denscombe, 2017, p.203). A group interview is distinct from a conversation; the researcher sets an agenda of discussion for the participants to follow, whilst adopting a neutral stance themselves (Denscombe, 2017). The researcher should listen carefully for subtexts and ask for elaboration, by exploring the underlying themes behind a comment, they will more accurately gain an insight into what participants' responses mean (Kamberelis & Dimitriadis, 2013).

The interviews will be semi-structured, meaning that there is variation with the use of questions and prompts, incorporating both closed and more open-ended questions (Galetta, 2013). Open questions are an important part of an interview, inviting the respondent to "provide a narrative" about a topic (O'Reilly & Dogra, 2017, p.22). The interview questions (a sample of which is presented in Appendix 2) followed the design process set out within literature; after outlining relevant themes and the general goals of research, ideas were translated into clear questions (Cohen et al., 2007). The interview will be audio recorded and then transcribed, to accurately capture a permanent record of discussions (Denscombe, 2017). Although audio recordings have been criticised for missing non-verbal communication cues (Denscombe, 2017), after consideration, I decided that a video recording would be too intrusive on the participants to justify, given that they are children.

Specific considerations were taken into account when designing the interview questions, given the age of participants. I have attempted to phrase my questions in a simple way to make the interview more accessible, and will give children adequate thinking time before asking them to answer (Cohen et al., 2007). As recommended within the literature, the interview would take place in a quiet and familiar space, without interruption, so that children feel comfortable (O'Reilly & Dogra, 2017). Putting children at ease is important before starting the main interview, as is encouraging them to feel in control, and therefore speak freely and produce valid data (O'Reilly & Dogra, 2017). Having a good relationship with participants is also beneficial; as my case study consists of pupils I have worked with on placement, my presence as the interviewer will hopefully make them feel comfortable to share their thoughts (Kamberelis & Dimitriadis, 2013).

I selected a group interview because of the numerous advantages that it poses as a form of qualitative data collection; it generates a depth of information, giving insights into a respondent's thinking, as well as being relatively simple to organise and flexible (Denscombe, 2017). However, without careful planning the process can be overwhelming, time consuming and generate invalid data (Denscombe, 2017). To overcome this, I have carefully designed logical and understandable interview questions, considering the setting and timing of the interviews, and anticipated how to make participants feel as comfortable as possible.

Data Analysis

As previously mentioned, my research approach is mixed methods; therefore, my data will elicit both qualitative and quantitative data for analysis. The data will be analysed in terms of my main research question and sub-questions.

Data collation

In Phase 1 and 2 of my research, the questionnaires will be distributed and collected by the class teacher, then scanned and stored electronically (children will be asked to not write their names on the questionnaires for anonymity purposes). The group interviews will be audio recorded and then transcribed; a copy of the transcription will be stored electronically. In the transcription, the exact language and phrases used by children, including those which are grammatically incorrect or do not make sense, will be recorded to retain data accuracy.

Data analysis and presentation

To elicit quantitative data from my research, I will compare the results of the Phase 1 and Phase 2 questionnaires, having converted the raw data into percentages, to understand children's opinions on TDM initiative in relation to their own learning. Before comparing the mixture of nominal and ordinal data in terms of frequency, results will have been inputted into a Microsoft Excel document. This is an example of a semantic analysis, that is surface level and looks simply at what has been said; in comparison, the group interview data will be subject to thematic analysis, which is latent and inductive, looking at the ideas behind what has been said (Maguire & Delahunt, 2017). Thematic analysis is "the process of identifying patterns or themes within qualitative data" (Maguire & Delahunt, 2017, p.3352), and is an approach which interprets data, rather than summarising it. I will

follow the procedures recommended within literature for creating themes, which involve becoming familiar with data, generating initial codes and reviewing themes before deciding on them (Maguire & Delahunt, 2017).

Provisional themes identified for my project will likely be:

a. Cognition

b. Focus/Attention

c. Attainment

d. General opinions on TDM

Once themes have been finalised, interview transcripts will be imported into ATLAS.ti, the computer-assisted data analysis software programme, as recommended within literature (Cohen et al., 2007), before being analysed, coded and organised according to the pre-determined themes. This coding process can generate meaning from data by counting frequencies, noting patterns and causality, and making inferences (Cohen et al., 2007) – for example how frequently children associated TDM with a positive impact on their classroom focus, and what this might suggest about the initiative. Similarly to the quantitative analysis, data and common themes will be compared, to see whether any significant opinions towards TDM exist within my case study. Thematic analysis, whilst valuable, can however have limitations as a research method; as researchers create analysis themes individually, these can sometimes be inconsistent (Nowell et al., 2017). I will overcome this by grounding my theme types carefully, being informed by existing research and my observations, to establish provisional themes.

When interpreted together, the combination of quantitative and qualitative data gathered will be rigorous, providing me with sufficient data to address my research questions. The data that will be analysed will then be presented in a mixture of formats within the final research piece, including graphs, tables and word clouds.

Ethics

Underpinned by the guidelines set out by the British Educational Research Association (BERA), my study has continually taken an ethical approach, based on the idea that "individuals should be treated fairly, sensitively, and with dignity and freedom from prejudice" during research (BERA, 2018, p.6). This ethical approach has informed all areas of my research design process and my initial study

proposal was approved by my personal tutor. Given that this research project involves working with children, who are a vulnerable group, additional steps have been planned to protect them (Oliver, 2010).

Transparency

A key ethical consideration when designing a research study is transparency; potential study respondents should be "fully informed about all the relevant aspects of the research" (Oliver, 2010, p.27). Transparency will be at the heart of my research, no part of the process will be hidden from participants (BERA, 2018). Before beginning my study, I will explain to children the full scope of this research project, including why the study is being conducted, what their participation will be used for and what will be measured.

Informed consent

Ethical research additionally "takes participants' consent, their informed and freely given 'yes' or 'no', very seriously" (Alderson & Morrow, 2011, p.101). Linking to ideas of fairness and personal autonomy (Oliver, 2010), I will ensure that once potential participants are informed about the research, they are empowered to decide whether they wish to take part or not, making the research opt-in rather than opt-out. The concept of consent, which will be integrated into my project, applies to children, however there are extra steps to gaining consent that would not be relevant with adults (Oliver, 2010). For this project, I will first seek informed consent from the school's Headteacher to implement TDM at the school for one term in my focus class. Once this has been received, I will send a letter to children's parents, guardians or carers, outlining the scope and aims of the study to also receive their permission for their child to participate. The students whose parents have consented will then be presented with the opportunity to take part; giving them adequate time to consider the project before deciding if they wish to participate, which is a free choice (Alderson & Morrow, 2011; Bell & Waters, 2018). I will also ensure children are aware that they have the right to withdraw from the study at any time, linking to the UN Convention on the Rights of the Child (1989), which highlights the importance of respecting children's autonomy.

Privacy, anonymity and confidentiality

I will also consider the protection of participant identities before, during and after the study – linking to the key ethical idea that all institutions and individual participants in research will be entitled to privacy (BERA, 2018). Confidentiality is a "promise that a participant will not be presented in the research in any way that could identify them", whilst anonymity "[guarantees] that even the researcher is unable to identify the participant" (Bell & Waters, 2018, p.53). Before consenting to the study, all potential participants will be made aware of their anonymity throughout the research project, and of the different steps taken to keep their information safe. In the final report, any details of the school, except for its broad geographical location, will be removed. When questionnaires are completed, participants will be instructed not to write their names on them, and they will be collected by the class teacher to ensure that researchers cannot link any answers to specific students. Similarly, during the group interview, children will be identified as pupil A/B/C etc. on the recording transcript. In accordance with GDPR guidelines, after completing this project, the interview audio recording and individual questionnaire sheets will be destroyed to protect the privacy of those who completed the study; participants will be informed of this (BERA, 2018).

Implications and Conclusions

When embarking on this project, I aimed to explore children's perspectives on the impact of TDM, given my own personal links to and interest in the physical activity intervention. My interest in examining this area only grew once it became apparent that the efficacy of TDM is disputed, especially in terms of its claimed cognitive benefits (Donnelly et al., 2016; Dring et al., 2022). My research has had several implications for education generally, as well as specifically for my own professional development.

Exploring existing literature in greater depth during this project has confirmed to me the importance of the school environment in facilitating the lifelong active lifestyles of young people. Physical activity undoubtedly has clear health benefits, being associated with the reduction of numerous physical disorders across a person's life (Hillman et al., 2008); schools are uniquely placed to foster active lifestyles in large groups of children at once (Ram et al., 2021). Given this awareness, as a professional I will strive to encourage regular physical activity amongst my pupils, knowing that it prepares them well for a healthy future. However, given the ambiguous picture within literature about

the benefits of TDM specifically (Brustio, 2023), I think a dose of scepticism is important before introducing new initiatives into my class; popularity does not always equate to effectiveness.

This project has also contributed to my professional development in terms of my understanding of psychology as a discipline. Having never studied it before, it was fascinating to learn about the multiplicity of aspects that combine to form 'learning', including attention, reaction times, inhibitory control and working memory. This will certainly have implications for my own future actions as a practitioner, furthering my knowledge which I will apply to the classroom. I had not previously considered the range of factors contributing to pupil's classroom experiences, and now recognise the importance of designing lessons that consider the different psychological aspects of learning, to encourage greater pupil interest and focus.

Additionally, I have gained a greater appreciation of the importance of gathering pupil perspectives as an educator. After completing my literature review, it became clear that despite the millions of children participating in TDM, there are very few instances where children's opinions on the initiative had been examined (Thorburn, 2020). This is undoubtedly a serious flaw within existing research, and denies children the opportunity to share their views as well as their teachers (Bucknall, 2010). Therefore, this proposed study has meaningful implications in terms of giving children the opportunity to have their voices heard in relation to new classroom initiatives. Including pupil voice in my classroom is already important to me, however as a result of this research I recognise that it is now even more vital to foster, especially when introducing new initiatives that will affect my pupils.

The research field related to physical activity initiatives in schools and cognition is still in its infancy, yet offers many promising ideas and suggestions for tackling the 'crisis' that is the falling levels of childhood physical activity. This is especially pertinent in a post-Covid world, where health disparities (particularly in terms of obesity) are growing along socio-economic lines (Casebourne, 2022), once again highlighting the crucial roles that schools play in addressing children's health. Many new school physical activity initiatives will undoubtedly be developed over the coming years as the research field evolves, however it is vitally important that these are created in consultation with scientific research, as well as pupil perspectives, thereby recognising children as "social actors in their own right" (Bucknall, 2010, p.3).

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Appendix 1

Phase 1 Questionnaire (Page 1 of 2)

Questionnaire Phase 1

This questionnaire is part of a research project that is investigating your opinions of The Daily Mile on your learning. You are going to be asked some questions about your progress in school. There are no right or wrong answers. Remember you can choose to not take part or stop this questionnaire at any point.

Rate how well you think you are doing in English:

1 2 3 4 5

Not well Ok Very well Not sure

Rate how well you think you are doing in maths:

1 2 3 4 5

Not well Ok Very well

Not sure

Rate how well you think you are doing in science:

1 2 3 4 5

Not well Ok Very well Not sure

Phase 1 Questionnaire (Page 2 of 2)

How well do you think you focus in lessons at school overall? Tick the box which finishes the sentence best:

I focus in lessons:

- all the time ☐
- most of the time ☐
- sometimes ☐
- hardly ever ☐
- never ☐
- don't know ☐

How are you feeling about taking part in The Daily Mile Challenge?

Bad Ok Good

If there is anything else you would like to share with us, please write it here:

_____
_____
_____
_____

I

Thank you for completing this questionnaire! 😊

Phase 2 Questionnaire (Page 1 of 2)

Questionnaire Phase 2

This questionnaire is part of a research project that is investigating your opinions of The Daily Mile on your learning. You are going to be asked some questions about your progress in school. There are no right or wrong answers. Remember you can choose to not take part or stop this questionnaire at any point.

Did you enjoy taking part in The Daily Mile challenge?

1	2	3	4	5
				
I never enjoyed it.	I rarely enjoyed it.	I had no opinion on it.	I often enjoyed it.	I always enjoyed it.

Circle which answer finishes the sentence best:

After completing The Daily Mile, I feel that my focus in the classroom is _____.

much worse a bit worse the same a bit better much better don't know

---

Since completing The Daily Mile, please rate again how well you think you are doing in…

English:

1	2	3	4	5
				
Not well		Ok		Very well

Maths:

1	2	3	4	5
				
Not well		Ok		Very well

Phase 2 Questionnaire (Page 2 of 2)

Science:

1	2	3	4	5
				
Not well		Ok		Very well

Do you think that The Daily Mile has influenced your learning overall? Circle the answer which is closest:

Yes - It had a negative impact on my learning.

No - It had no impact on my learning.

Yes – It had a positive impact on my learning.

If there is anything else you would like to share with us, please write it here:

_____

_____

_____

_____

Thank you for completing this questionnaire! 😊

Appendix 2

Interview schedule example: Phase 1

Area 1: Cognition and focus

1) How well do you focus during lessons?
2) How do you try and stay focused in school?
3) Is there anything that helps you to stay focused?

Area 2: Attainment

1) What is your favourite subject out of English, Maths or Science?
2) How are you doing in English/Maths/Science? Why?

Area 3: The Daily Mile and physical activity

1) Do you stay physically active or play any sports in/outside of school?
2) How are you feeling about taking part in The Daily Mile challenge? Why?

Interview schedule example: Phase 2

Area 1: The Daily Mile, cognition and focus

1) How well do you focus during lessons?
2) Has taking part in The Daily Mile had any impact on your levels of focus in school? Why was/wasn't this?

Area 2: The Daily Mile and attainment

1) Do you think that taking part in The Daily Mile has impacted how well you do in English/Maths/Science? Why?

Area 3: The Daily Mile and physical activity

1) Did you enjoy taking part in The Daily Mile?
2) Why did you enjoy/not enjoy it?