

Introduction

I recently conducted a small-scale research study on motivation for PE among primary school aged girls. This reflective essay seeks to outline my journey through the research process and the stages of planning, implementation, and analysis. Using Bassot's (2013), Integrated Reflective Cycle, I will explore how the research process deepened my understanding of motivational theory and methodological design and prompted critical reflection on my role as a teacher-researcher, the ethics of working with children, and the practical realities of conducting research in educational settings. The cycle comprises four stages. Firstly, the experience, which describes the experience. Secondly, the reflection on action stage explores thoughts, feelings and assumptions while identifying strengths and areas for development. Thirdly, the theory stage allows for consideration of the experience from a larger theoretical perspective. Finally, the preparation stage provides an opportunity to plan for decisions in future research projects. In this piece, I will combine the reflection on action stage with the theory stage for a more coherent analysis of a series of experiences.

1. The Experience

Background and Rationale

With the benefits of regular physical activity (PA), such as reduced risk of cardiovascular disease, obesity, and type 2 diabetes being well-documented (WHO, 2022), PA among adolescent girls in Scotland remains a major concern, as latest national data shows persisting gender discrepancies in PA levels with only 43% of girls aged 13-15 years old meeting WHO guidelines, compared with 67% of boys in the same age group (Scottish Centre for Social Research, 2023). Despite policy initiatives to increase participation, many girls across the United Kingdom remain disengaged from physical education (PE) and sports, particularly as they transition into adolescence (Active Healthy Kids Report Card, 2021; Youth Sport Trust, 2023). PE is recognised as an effective platform for promoting regular PA among children and adolescents (Cooper *et al.*, 2016). Beyond encouraging activity during the school day and developing physical competence, PE also plays a key role in fostering the knowledge, skills, and motivation needed for lifelong participation in PA

(Bailey and Dismore, 2006; Fairclough *et al.*, 2002; Gu and Solomon, 2016; Jaakkola *et al.*, 2013; Lonsdale *et al.*, 2017; Shen, 2014).

Motivated by this challenge and recalling personal disengagement from sport during adolescence, my research set out to explore the impact of a Self-Determination Theory (SDT) (Ryan and Deci, 2017) informed, girls-only football club on motivation in girls aged 8–12 years old.

Research Focus

This small-scale study aimed to evaluate whether an intervention, which supports basic psychological needs of autonomy, competence and relatedness as embedded in SDT could increase girls' motivation.

Existing evidence shows that SDT-informed interventions have been effective in improving outcomes in school PE by fostering autonomy-supportive environments (Vasconcellos *et al.*, 2019; White *et al.*, 2021). Autonomous motivation is linked to better behavioural and health outcomes (Ng *et al.*, 2012; Teixeira *et al.*, 2012). A meta-analysis of 256 studies confirmed that need satisfaction strongly predicts autonomous motivation, which is associated with increased enjoyment and PA intentions, and fewer negative outcomes (Vasconcellos *et al.*, 2019).

Teacher behaviours play a key role. Autonomy-supportive teaching—using choice, inviting language, and reduced pressure—boosts motivation and engagement (Reeve, 2009; Cheon, Reeve and Moon, 2012; White *et al.*, 2021). Competence support, including clear guidance and constructive feedback, enhances students' confidence and participation (Sanchez-Oliva *et al.*, 2014; Cheon, Reeve and Song, 2019). Relatedness, particularly peer support, further strengthens motivation (Vasconcellos *et al.*, 2019; White *et al.*, 2021). Positive peer relationships increase intrinsic motivation, while negative interactions can undermine it. Overall, SDT offers a strong framework for enhancing motivation and promoting PA in school PE settings.

Teaching approaches for SDT often vary, but defined strategies such as the 21 techniques for supporting psychological needs in PE (Teixeira *et al.*, 2020) could

offer a more consistent framework for future research and clearer comparison of findings. Based on evidence from previous studies, I developed a quick reference guide (Appendix A) for teachers hoping to implement needs supportive instruction in their lessons. My research sought to evaluate the impact of this teaching guide on the participants' motivation levels.

While most research on the impact of SDT informed interventions have focussed on middle school or secondary school aged participants, some studies highlight its success in increasing motivation among primary aged students (Llanos-Muñoz *et al.*, 2023; Abdulla *et al.*, 2022). In the Scottish context, a study exploring an activist approach to teaching secondary PE to girls found the use of affective pedagogy enhanced emotional and motivational engagement (Lamb *et al.*, 2021). I sought to examine the use of SDT informed approaches for primary-aged girls as this is a context that appears unexplored in the existing literature. The research question was 'what is the impact of an SDT informed girls only football club on motivation among girls aged 8-12?', with the hypothesis and null hypothesis as H₁: An SDT informed girls' only football club will increase motivation to participate in PA. H₀: An SDT informed girls' only football club has no impact on motivation to participate in PA.

Study Design

The study was situated within a positivist paradigm, adopting a hypothetico-deductive framework to test the research hypothesis. This philosophical stance assumes an objective reality and a separation between the researcher and participants (Park, Konge and Artino, 2020), aligning with the aim to measure quantifiable changes in motivation.

A one-group, pre- and post-test design was employed to assess changes in motivation following the intervention. While the inclusion of a control group could have strengthened internal validity (Smith, 2018), ethical concerns around withholding a potentially beneficial intervention, along with logistical constraints, necessitated a single-group approach.

The intervention was offered as a voluntary after-school club on school grounds. My colleague and I delivered weekly football sessions over three weeks, focusing on

autonomy-supportive teaching methods. Participants were given opportunities to lead activities as well as choices, such as selecting drills or setting personal goals, with non-judgmental feedback to emphasize skill development. The sessions fostered relatedness by encouraging positive peer relationships in an inclusive, respectful environment. Activities were tailored to the girls' interests and abilities, ensuring engagement and competence. Group discussions at the end of each session allowed participants to share experiences, further enhancing their sense of connection and community within the club.

Data was collected using an adapted version of the *Motivation to Exercise and Diet Questionnaire* (Pietrabissa *et al.*, 2020), excluding diet-related items to align with the study's focus. A convenience sample of 16 girls aged 8–12 from Primary 4–7 was recruited from my current school. They completed paper copies of the questionnaire during school hours. Pre- and post-intervention scores were analysed using a Wilcoxon Signed Ranks Test to determine any significant differences in motivation levels pre and post intervention. The test indicated that on average, participants' motivation increased ($Mdn = 31.00$) after the sessions compared to before ($Mdn = 30.00$). A Wilcoxon Signed Ranks Test indicated this improvement was statistically significant, $W = 4$, $z = 2.31$, $p = .021$. Therefore, the null hypothesis could be rejected.

When writing my research proposal, at times I felt overwhelmed with the terminology, methodologies and the idea of analysing data. As a first-time researcher and someone who is passionate about the health and wellbeing of children, I felt a desire for the intervention to 'work'. At this point, I became concerned about researcher bias and wanted to ensure I remained as objective as possible throughout the study.

Ethical Considerations

Ethical considerations were central to this research, ensuring the protection of participants' rights and dignity (Cavan, 1977). Informed consent was obtained from legal guardians through a plain language statement and assent was secured from the children, with the option to withdraw at any time (Pillay, 2014). Given my position

as a teacher, I made it clear that participation would not affect academic outcomes. All data was anonymized and securely stored (Basit, 2010). The research adhered to ethical guidelines from the British Educational Research Association (2024), UNCRC (1989), and UNICEF (2013).

2. Reflection On Action And Theory

One strength of the study was the alignment between the chosen research question, the quantitative methodology and research tools employed. During the proposal stage I struggled to confidently choose an appropriate research question and methodology as I battled with ontological and epistemological considerations. I had to weigh up what was achievable in the given time frame versus the desire to gain a deeper understanding of the complexities around young people's motivation to engage in PE. Reading around the strengths of quantitative research in sport, I noted that data collection and analysis could be relatively quick and since I was examining an existing theory, SDT (Johnson and Onwuegbuzie, 2004). Choosing to measure motivational change, rather than explore feelings around motivation, I adopted a positivist paradigm, defined by an ontological perspective of a singular, tangible world and an objectivist epistemology, which posits a separation between the researcher and participants (Park, Konge, and Artino, 2020). A hypothetico-deductive approach allowed for statistical analysis through SPSS, directly addressing the research question while maintaining methodological coherence (Smith, 2018).

Framing the intervention in SDT (Ryan and Deci, 2017) provided a coherent framework that gave the research design a coherent structure and led to the use of a validated questionnaire, the Motivation to Exercise and Diet Questionnaire—Adapted for Children (Pietrabissa *et al.*, 2020). This tool comprises eight items—five assessing motivation and three evaluating need satisfaction related to exercise. Pietrabissa *et al.* (2020) validated the full version as the first instrument to concurrently measure both motivational regulation and psychological need satisfaction within the context of children's exercise and dietary behaviours. Since the diet related questions were unrelated to my study and may have been a cause of discomfort to some participants, these were removed. While I had choice of other

questionnaires, I was aware of the young age of participants and the need to make the questionnaire as accessible and succinct as possible. The questionnaire was appropriate for the context and age group and the participants required little explanation. Hale and Graham (2012) point out that in designing a questionnaire, we need to guarantee that the data collected must be robust enough to address the research aims effectively. Confidence in the quality and reliability of the data is essential to ensure that any conclusions drawn are valid and meaningful. In choosing a validated questionnaire, I felt confident that the appropriate data would be collected.

From the outset, I had concerns about my sample. For time efficiency, a convenience sample from my school setting was used (Atkinson, 2013). In choosing to attend an after-school club, I knew it was likely that the girls would already be motivated towards PA and PE. Indeed, pre-test motivation scores from the questionnaire revealed that most participants were already in or above the 85th percentile rank of the MED-C Normative Scores (Pietrabissa *et al.*, 2020). When it came to analysis, I had originally intended to run a Paired Samples T-test through SPSS. However, the data was non normal and so I had to familiarise myself with the Wilcoxon Signed Ranks Test, a non-parametric test and chose it as the most appropriate (Politi, Patino and Ferreira, 2021). I recognise that a larger sample size from a more diverse sample would have likely produced more normally distributed data and allowed me to run a Paired Sample T test as planned. In sport-related research, it is common to use volunteer or convenience samples; however, these are unlikely to be representative of the wider population and may result in misleading conclusions. For more accurate representation of specific populations, purposive or stratified sampling methods are often more suitable (Smith, 2018). While a control group could have strengthened the study's findings, I decided that withholding a potentially helpful intervention from participants was unethical and although the creation of a waitlist group could have overcome this issue, time constraints did not permit this (Smith, 2018).

The questionnaire required the participants to self-report, which can often yield different results compared to face-to-face or telephone interviews (Dale, 2006;

Dillman *et al.*, 2014). Individuals may under-report to avoid giving socially undesirable responses or over-report to present themselves more favourably. This was something I observed as a possibility when the girls gathered to fill in the questionnaires, as they occasionally glanced around, seemingly wondering what others were answering. On the other hand, several studies suggest that if self-report questionnaires are appropriately validated and tailored for the target group, they can be reliable tools for gauging children's motivation (Conesa and Duñabeitia, 2022; Hutchinson, Perry and Shapka, 2021; Pietrabissa *et al.*, 2020). Kenett (2006) points out that the researcher needs to ensure questions are interpreted consistently. Since I explained the questionnaire and the meanings, it is possible I introduced bias into the data collection and, potentially, impacted on its reliability. Additionally, my presence may also have influenced the answers as I am a current teacher at the school and as such hold a position of power (Basit, 2010). With this in mind, I was clear that there were no correct answers and that their responses would have no impact on our relationship, their time at the club or on any other outcomes at school.

Quantitative research within SDT presents challenges, particularly in capturing complex constructs like autonomy, competence, and relatedness. Such methods risk oversimplifying lived experiences and overlooking shifting motivational dynamics over time (Hansen *et al.*, 2021; Zheng *et al.*, 2020). While quantitative tools were suitable for assessing outcome differences in my study, I became aware of their limitations in conveying participants' depth of experience (Cohen, Manion and Morrison, 2018). This highlighted the potential value of incorporating qualitative or mixed-methods approaches in future research to enrich understanding (Montgomery *et al.*, 2021; Lim, 2024).

Ethical Considerations

Another challenge was the ethical complexity of conducting research in a familiar setting where I held a dual role as both teacher and researcher. My existing role as teacher meant I had previous experience of upholding children's rights and ensuring their wellbeing. Academically, professionally and personally, ethical considerations stood in my forethought throughout the project. I was guided by the British

Educational Research Association (BERA, 2024), the UN Convention on the Rights of the Child (UNCRC, 1989), and UNICEF's Ethical Research Involving Children framework (UNICEF, 2013). I upheld the rights and dignity of participants by ensuring transparent information sharing, allowing the right to withdraw at any time, and safeguarding all data. These frameworks supported the ethical integrity of my research and deepened my understanding of children's participatory rights within educational contexts.

Despite emphasising the voluntary nature of participation and ensuring informed consent and assent (Pillay, 2014), the inherent power dynamics of my position may have influenced participants' willingness to engage or respond positively. Basit (2010) highlights the risk of coercion in educational research, especially when the researcher holds an authoritative role. Although I took steps to mitigate this, including anonymous responses and ethical transparency, this remains a limitation. For me, this underscores the importance of ethical reflexivity for future research (Olmos-Vega *et al.*, 2023).

Implementation

I designed the intervention to foster the key SDT principles. Autonomy was promoted by giving participants choice in drills and personal goals. Competence was nurtured through structured feedback, and relatedness was encouraged through group discussions and inclusive team dynamics. These design elements align with established literature on autonomy-supportive pedagogies, which highlight the effectiveness of teacher behaviours such as offering choice, encouraging effort, and creating a caring climate (Cheon, Reeve and Moon, 2012; Reeve and Cheon, 2021). While I feel that the structured environment, informed by SDT, provided a practical translation of theoretical concepts into an accessible and developmentally appropriate format, I became aware of the concept of implementation of fidelity, the degree to which intervention programmes are carried out as intended (Dusenbury *et al.*, 2003). While there are five core elements to measure implementation of fidelity (Carroll *et al.*, 2007), I focussed primarily on adherence to the evidence based teaching strategies and delivering the sessions to a high standard. Considering this, I frequently reviewed the teacher's guide I had created and was mindful of my delivery before, during and after sessions. One factor of implementation which I would

improve would be the length or exposure to the intervention. Participants in my study only attended three sessions before doing the post intervention survey. Other autonomy supportive interventions grounded in SDT have been implemented over longer periods such as one academic year (Cheon and Reeve, 2017) and I feel this would have allowed richer development of a motivational climate.

3. Preparation

Reflecting on this research project has deepened my understanding of motivational theory, research design, and the ethical complexities of conducting educational research with children. For future projects, I would strengthen the implementation fidelity of an SDT intervention by extending the duration, as three sessions may have been insufficient to produce lasting motivational change. Drawing from Cheon and Reeve (2017) and Tilga *et al.* (2020), future interventions should span several weeks or even terms to allow for more sustained impact.

I also recognise the importance of sample selection. While the convenience sample made data collection feasible, it likely introduced bias due to participants' pre-existing motivation for PA and voluntary participation in an after-school club. Future research could incorporate purposive or stratified sampling methods (Smith, 2018) to improve representation and enhance generalisability. Where possible, the inclusion of a waitlist control group may strengthen internal validity without withholding opportunities from participants (Smith, 2018).

Methodologically, I would consider using a mixed-methods approach to capture both measurable outcomes and the depth of lived experiences. While the validated questionnaire (Pietrabissa *et al.*, 2020) enabled objective analysis, it didn't fully capture the nuanced changes in motivation I observed anecdotally. Incorporating interviews or focus groups could offer richer insight and help mitigate the limitations of self-reporting (Kenett, 2006; Conesa *et al.*, 2022).

Finally, I would aim to strengthen ethical reflexivity by continually questioning my position of power as a teacher-researcher. While I followed ethical guidelines (BERA,

2024; UNICEF, 2013), future studies could benefit from participant advisory groups or external observers to reduce bias and ensure that children's voices are truly central. These changes will support the development of more inclusive, valid, and impactful research.

Conclusion

Engaging in this small-scale research project has significantly deepened my understanding of the research process, from the initial question to design, data analysis and reflection. Navigating each stage required critical engagement with methodology and ethical considerations, particularly within a school setting. Developing a clear research question aligned with SDT enabled coherence throughout the study, while choosing a validated measurement tool supported the reliability of data collection. However, the process also exposed challenges, such as selecting an appropriate sample and managing the complexities of dual roles as teacher and researcher.

Designing and delivering an SDT-informed intervention demanded ongoing reflection to ensure fidelity to theory, while analysing non-normally distributed data prompted flexibility and a deeper engagement with statistical methods. Ethical considerations remained central throughout, shaping recruitment, consent, and the reflecting on findings with a view to minimising bias and protecting participants' rights.

Reflecting through Bassot's cycle (Bassot 2013) helped me critically evaluate decisions at each stage and identify areas for growth. In future research, I would seek to improve sample diversity, extend the duration of the intervention, and incorporate mixed methods to enrich understanding. Overall, this experience has enhanced my competence and confidence as a teacher-researcher, equipping me with a solid foundation for future, more rigorous inquiry.

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Appendix A

PLANNING TO ENHANCE AUTONOMOUS MOTIVATION IN PE

AUTONOMY

The need to feel that you are the origin of your own actions

What could you do to support autonomy?



MAKE LEARNING MEANINGFUL

Give a rationale for the tasks and suggest relevance to learners' lives
Learners value improved skills, performance, friendships and community

USE NON CONTROLLING LANGUAGE



'you could do it like this'
'you might like to try it this way'



'you need to do it like this'
'you must do it this way'

TAKE SUGGESTIONS AND PROVIDE CHOICE

What do the learners want to try? Ask before class.
Try a free play warm up or equipment exploratory time

PROVIDE CHANCES FOR INITIATIVE

Could some children create cue cards for techniques?
With parameters, could some design a warm up, a station or a mini-game?

CLEAR EXPECTATIONS

Collaboratively clarify the success criteria - modelling, visuals and cues

PRACTICAL SKILLS AND OPTIMAL CHALLENGE

- Provide lots of opportunities for repeated practice and success
- Consider physical skills level - not too hard, not too easy, just right.
- Gamify tasks - with a mix of abilities, you could provide a variety of challenge levels. A bigger/smaller ball? A lower/higher target?
- Give choice of partaking in a competitive game or a no-score game

INFORMATIONAL TASK FEEDBACK

'That was successful because... you followed through with your throwing arm'
'You could try swinging harder at the ball'

COMPETENCE

The need to feel to feel effective and successful in your interactions with the environment

What could you do to support competence?



RELATEDNESS

The need to feel to feel a connection with others around you

What could you do to support relatedness?



ATTUNEMENT AND EMPATHY

Pay attention to your learners' - what knowledge do you have about them?
How might they be feeling?
Show your genuine appreciation and concern for them

ENCOURAGE PEER RELATEDNESS

- Avoid peer comparison of performance
- Pair work and group work - model effective language for communication and feedback
- The instructional models on the next page offer teaching methods that emphasise communication skills and teamwork

Next page - info, QR codes, further reading