

	Targed/target	Yr hyn yr wyf wedi'i wneud yn yr aseiniad hwn What I have done in this assignment...
Targed/Target 1	Synthesise your own argument based on the range of literature	I have engaged with a range of literature and have used my readings to influence my own arguments and suggestions for improvement.
Targed/Target 2	Ensure proof reading to find spelling/grammar issues	I have engaged in proofreading numerous times and have corrected spelling and grammar issues
Targed/Target 3		

How a school develops one aspect of its SDP: a report that critically reflects on the actions, impact and evidence base (2726 words)

A School Development Plan (SDP) is a school's strategic plan for improvement. The plan sets out targets to improve learner outcomes, with resources dedicated to these, and outlines which ways these targets can be achieved (Welsh Government, 2014). This report will critically evaluate how my Professional Teaching Experience school (PTE1) develops one aspect of their SDP. The aspect within the SDP I have decided to focus on is improving consistency of effective teaching and learning in numeracy and mathematics. Using an evidence-based framework, I intend to critically reflect on the actions undertaken to develop this aspect and the impact these actions have had on learners and the school. My PTE1 school will be referred to as school X, in accordance with Bera Guidelines (2018). School X is a large inner-city Primary School in South East Wales based in a low socio-economic area. Within the school, there are 25% of pupils who are eligible for free school meals (FSM) (Estyn, 2017, p.1), which is above the national average of 20%. In their most recent Estyn (2017) inspection, the school's current performance was graded as good and prospects for improvement were graded as excellent.

An SDP is an ongoing, cyclical document which is regularly monitored and used as a reflective tool so stakeholders can judge whether targets are being met as a result of the strategies implemented (Hargreaves and Hopkins, 1991, p.133). The stakeholders involved vary from Governors, Headteachers, school staff, parents and the wider community. Although Governing bodies generally hold responsibility for the SDP, they will work closely with headteachers and staff when creating the document, and all parties will be responsible for implementing the necessary actions to achieve the targets (Welsh Government, 2014). There is debate within the literature regarding whether a "top down" or "bottom up" approach is most effective in school development planning. It could be argued that taking a "bottom up" approach (i.e. starting the improvement process from the level of the individual teacher), allows teachers to take ownership over targets and creates a culture of self-improvement (Skedsmo and Huber, 2019), whilst enabling educators to share ideas with other educators more organically. However, clear objectives often derive from leadership in a "top down" approach, which is integral to creating a shared vision and common goals during school improvement (Harris, 2004). Reynold's et al. (2002, p.221) reviewed school effectiveness

across the world, and concluded the most effective schools use both “top down” and “bottom up” approaches at different stages of the SDP process. For example, a “top down” strategy can be used to provide aims and strategies, but this can be complemented with a “bottom up” approach, when prioritising goals and implementing goals.

From the 1st of September 2015, it became legislation for all schools in Wales to have an SDP in place, and the Welsh Government (2014) published a Guidance document for schools to adhere to. This document outlines how every school’s SDP must include how they are addressing Wales’ National Priorities of improving numeracy, literacy and reducing the attainment gap. The need to improve learner’s numeracy and literacy skills was based on Wales’ Programme for International Student Assessment (PISA) scores, which showed Wales were consistently underperforming in Mathematics and Reading, when compared to the rest of the UK (Welsh Government, 2017). With regards to closing the attainment gap, research illustrates a correlation between poverty and low educational attainment (West, 2007 and Miller et al. 2019). It is therefore important that school’s put systems in place to overcome the barriers face by these learners.

This attainment gap is particularly prevalent within Mathematics, as statistics show that most 19-year-olds who have been eligible for FSM, leave education without a good standard of recognised qualifications in Mathematics (Education Endowment Foundation, 2017). This is problematic, because Mathematics provides learners with the opportunity to develop problem solving skills, preparing them for real-life problems, every-day transactions, and most forms of employment require a competence in a range of basic mathematical skills and knowledge (Haylock and Cockburn 2013, p.13). To investigate why children from lower socio-economic areas have lower rates of Maths attainment, Kaluge (2018) conducted a longitudinal study involving 118 pupils from 60 primary schools across the UK. Children’s Mathematic test scores were analysed, along with the socio-demographic data of parents and information gathered from parental questionnaires. The findings indicated that occupation and education of parents were significant indicators of children’s progress in mathematics. Humble and Dixon (2017) agree with Kaluge’s (2018) findings, that parental knowledge and involvement is the catalyst behind higher attainment levels in children. The implications of these findings suggest school’s need to be aware of these barriers when providing mathematic education and have systems and resources in place to overcome them.

Closing the attainment gap has been a key focus of Welsh Government’s (2017) “National Mission” and it has heavily invested into that aim, allocating £101 million of their 2020-21 budget, to boost the performance of disadvantaged children (Lewis, 2020). School’s receive

this extra funding through The Pupil Deprivation Grant (PDG), which was first introduced in 2012 with the aim to break down the barriers faced by FSM learners and looked after children (Welsh Government, 2015). The Welsh Government (2015) has enabled schools to choose how to use this funding, however, schools must publish online, their plans of improving outcomes for deprived children. Although, it is important to note that there does not appear to be a direct relationship between increased school funding and increased pupil attainment, rather, it is dependent on schools effectively and efficiently use the resources they have (financial and human) for maximum impact (The Education Endowment Foundation, 2017). To investigate how schools can use funding most effectively to close the attainment gap in Mathematics, Baker et al. (2017) conducted a 20-year longitudinal study. The researchers visited various schools, and analysed pupil's maths attainment alongside the school's resources. Findings indicated that conducting Mathematic intervention classes, implementing higher staffing ratios and increasing teachers' wages were the strongest predictors of educational achievement of disadvantaged children. However, due to the correlational nature of this research, it is difficult to draw valid conclusions about whether intervention classes, increased wages and higher staffing ratios improve attainment, when in isolation, and to what extent.

School X decided to focus on improving Maths attainment through a process of self-evaluation. This initial stage of the process requires stakeholders to reflect on their performance and identify their strengths and areas to improve (Welsh Government, 2014). This enables schools to plan the necessary actions and resources they need to bring about improvement (DfE, 2010). In school X, the Governors and Headteacher collaborated to do this. First, they reflected on their most recent Estyn (2017, p.2) report, which identifies "continuing to improve Numeracy and Literacy" as a key priority. To support their reflections further, they gathered and analysed pupil's most recent National Test scores. This quantitative data indicated that Mathematic results for year six pupils were above the average results in the local authority, but below the average results for the region and Wales, whereas pupil's Mathematic results from year three to year five, were below the average score in the local authority, region and Wales. School X reflected on their location and acknowledged the high rates of poverty within the local area, which could be a barrier towards Mathematic attainment. They then analysed the impact of poverty on their pupil's Mathematic attainment. They found 93% of FSM pupils failed to achieve a Level 4 in Maths by the end of year 6, compared to only 77% of non-FSM children. Based on these findings, they decided to plan actions and put in place resources to improve consistency of teaching Numeracy and Mathematics across the school.

Research has suggested using data-based decision supports teachers in making informed instructional decisions (Huffman and Kalnin, 2003), and can lead to increased student learning outcomes (Protheroe, 2001). However, Lai and Schildcamp (2013) suggested schools can become over reliant on using summative data, and there are many other sources and indicators that schools can use to make better informed decisions. Heitink et al. (2015) believes using “informal data,” gathered through formative assessments, may provide a more realistic indicator of children’s performance and gaps in knowledge.

Following self-evaluation, the Governors, Headteacher and four Lead Mathematic teachers formed a leadership team and began the strategic planning process. They brainstormed ideas on how they could improve the consistency of Mathematics and Numeracy across the school. They sought support and advice from local schools who were performing well in Mathematics. Many of these well performing schools were using the Educational Achievement Service for South East Wales TAPAS Document in their Maths lessons. This document advises teachers to engage in a three-part mental Math warm up at the start of every Maths lesson for 10 minutes to develop pupil’s mental maths strategies. The idea behind this, is to keep key skills on the boil and strengthen children’s working memory of number facts and strategies, and eventually their working memory solidifies into knowledge and children become independent when using these techniques (DeStefano and LeFevre, 2004).

School X took this idea on board and planned for all teachers to use TAPAS warmups at the beginning of Maths sessions. The leadership team outlined what they wanted learners and teachers to achieve by two milestones: December 2019 and April 2020. This vision was communicated to all school staff, and parents via School X’s website and monthly newsletter. According to the Welsh Government (2014), communication between school leaders and stakeholders is integral to ensure each member is committed to the school’s improvement agenda. To ensure all school staff had a clear understanding of the TAPAS method, School X held a training day at the start of the Autumn term and provided guidance and modelling on how to effectively conduct the warmup. The school then implemented this strategy in September 2019.

Monitoring and reflecting on the impact of TAPAS was a continuous, ongoing process throughout the year, through informal discussions with staff and termly conducted book inspections by Maths Lead Teachers. A formal lesson observation was conducted by the Headteacher in every class in December 2019. The Headteacher graded teachers on their teaching of the mental warm up, and graded pupil’s learning. The data collected from the observation indicated 90% of staff were confident in the use of the warmup and 90% of staff

showed good or better teaching and learning. The data also indicated 50% of children apply the most appropriate mental strategy for a calculation and demonstrate a fluency with number at a stage appropriate for their age. However, it could be argued that judging teaching ability and learners' Mathematical knowledge by observing a singular lesson does not provide a valid insight into everyday teaching and learning. Firstly, teachers are aware they are being observed and may consequently alter their behaviour and teaching strategies compared to how they teach normally, this means the observation maybe not true reflection of what usually happens inside the classroom. Secondly, the grading of observations is based purely on the observer's judgements. Ho and Kane (2003) found that Headteachers tended to rate their own teachers more highly compared teachers from other schools, which could produce unreliable and invalid conclusions when measuring the impact.

Although observational data indicated positive progress in the teaching of TAPAS, it also illustrated to stakeholders that children's application of number and mental strategies needs to improve further. When discussing and reflecting on the observations, staff acknowledged there were inconsistencies regarding the purpose of the warmup, with some classes engaging in the warmup to teach key mental math strategies, whilst others were using the warmup to recap previous learning. To overcome this, the expectations of the technique were relayed during a twilight training session, and the headteacher provided opportunities for less confident staff to peer observe more experienced staff teaching TAPAS warmups. Empirical research shows that less experienced and less confident teachers can improve their teaching skills from observing more confident colleagues, as it enables colleagues to learn new techniques from one another (Fletcher, 2018). Another formal observation is planned for April, to assess the progress made, but will have to be postponed due to coronavirus.

A strength of School X's SDP was engaging in school-to-school support when strategically planning their action to improve Mathematic attainment. Estyn (2017) recommends school to school collaboration as an effective way to improve learner outcomes, change professional practice and empower practitioners. This is supported by the constructivist theory, which believes all learning is based on social interaction and cooperation (Vygostky,1978). Constructivists believe every school has its own perception of reality and although this does contribute the effectiveness of school, it could result in the school becoming short-sighted (Muijs and Rummyantseva 2012). Therefore, school-to-school collaboration provides an opportunity for practitioners to engage in social learning, which allows new knowledge to emerge as groups work together and scaffold one another. This often leads to building ideas and finding solutions (Borgatti & Foster, 2003).

The school chose to improve teaching consistency of Mathematics and Numeracy because data indicated pupils were underachieving in their National Test scores. However, it could be argued that it is important to use data to inform the causes of problems before coming up with solutions (Schildkamp, 2019). This is something that School X did not engage fully in. They did identify that a higher proportion of learners who were underachieving in Maths were FSM children but did not investigate why this was the case in their school. For example, if the cause of low Mathematic attainment lies elsewhere (lack of interventions for FSM learners) attainment levels will remain and may even be exacerbated. A possible suggestion to overcome this could be, speaking with children, parents, carers and the wider community, to gather their views on Mathematics. This may be timely, but it could lead to the root of the problem. Estyn (2020) has shared good practice on how Llanrhidian Primary School involves and engages with a variety of stakeholders during the SDP process. When deciding on an area of improvement, the school collects the views of parents, staff members and children through an online questionnaire and analyses their responses. The gathered information is used to shape strategic planning, and is then shared back to stakeholders through newsletters, governing body reports and using the school's twitter. This gives parents the opportunity to become on board with the school's goals and as a result, parents feel that their views are valued.

The earlier discussed research suggested low parental involvement is a main factor of underachievement in children from low socio-economic areas (Kaluge, 2018). It could be argued that improving parents' Mathematic knowledge means children can have support when practising at home, which could lead to higher attainment. This was something Garnteg Primary school decided to do to improve Maths attainment across their school, which similarly has a high number of FSM pupils. They held weekly parental Mathematic sessions, and found as a result, parents understanding and confidence in helping their children at home improved, which was reflected in children's engagement in Maths lessons (Estyn, 2020).

This assignment has discussed school X's school development process, providing insight into each of the stages. In order to improve consistency in teaching Maths and Numeracy across the school, school X implemented TAPAS warm-up sessions across the school, at the beginning of Maths lessons. The impact was reviewed informally (through staff discussions and book looks) and formally (through lesson observations). The data collected was used to review the action and implement more training for staff. I have learnt that the school development planning is an ongoing and continuous process which needs to be regularly monitored and used as an working document, as support can be put in place (like in school X's case) or targets can be adapted if staff are finding them challenging. I have

also learnt that communicating short- and long-term goals to stakeholders is key to get everybody on board with the process. Providing information to parents about the school's strategies, and holding additional parental classes is an effective way to improve learning at home which contributes to meeting attainment targets. In my future teaching practice, I will strive for self-improvement, not only as an individual teacher, but collectively for the school and community I will be working in. I will take ownership over the improvements needed, and consistently reflect on my efforts in achieving these.

Reference list

Baker, B. Farrie, D. and Sciarra, D. (2016) 'Mind the gap: 20 years of progress and retrenchment in school funding and achievement gaps.' *ETS Research Report Series*, 2016(1), pp.1-37.

British Educational Research Association (BERA) (2018) *Ethical guidelines for educational research*. 4th edn Available at: <https://www.bera.ac.uk/researchers-resources/publications/ethical-guidelines-for-educational-research-2018> (Last accessed: 30.02.20)

Borgatti, S, and Foster, P. (2003) 'The network paradigm in organizational research: A review and typology'. *Journal of management*, 29(6), pp.991-1013.

Department for Education (DfE) (2010) *Strategic planning the key to financial sustainability: a value for money planning guide* Available at: https://dera.ioe.ac.uk/708/7/strategicplanning_Redacted.pdf (Last accessed: 02.04.20)

DeStefano, D. and LeFevre, J. (2004) 'The role of working memory in mental arithmetic'. *European Journal of Cognitive Psychology*, 16(3), pp.353-386.

Education Endowment Foundation (2017) *The Attainment Gap 2017*. Available at: https://educationendowmentfoundation.org.uk/public/files/Annual_Reports/EEF_Attainment_Gap_Report_2018.pdf (Last accessed: 16.03.20)

Education Endowment Foundation (2017) *Closing the attainment gap - new EEF report reveals stark challenge* Available at: *Closing the attainment gap - new EEF report reveals stark challenge* <https://educationendowmentfoundation.org.uk/news/closing-the-attainment-gap-a-lot-still-to-do-says-new-eef-report/> (Last accessed: 15.04.20)

Estyn (2016) *A report on [REDACTED]*. Available at: [https://www.estyn.gov.wales/sites/www.estyn.gov.wales/files/documents/\[REDACTED\]%20C.P.%20School.pdf](https://www.estyn.gov.wales/sites/www.estyn.gov.wales/files/documents/[REDACTED]%20C.P.%20School.pdf) (Last accessed: 20.03.20)

Estyn (2017) *School-to-school support and collaboration – a summary and discussion paper*. Available at: [https://dera.ioe.ac.uk/30827/1/School-to-school%20support%20and%20collaboration%20\(002\)_Redacted.pdf](https://dera.ioe.ac.uk/30827/1/School-to-school%20support%20and%20collaboration%20(002)_Redacted.pdf) (Last accessed 02.02.20)

Estyn (2020) *Effective practice*. Available at: <https://www.estyn.gov.wales/effective-practice/involving-all-stakeholders-identifying-priorities-school-improvement> (Last accessed: 06.11.20)

Estyn (2020) *Working in partnership with parents to raise learner literacy and numeracy*
Available at: <https://www.estyn.gov.wales/effective-practice/working-partnership-parents-raise-learner-literacy-and-numeracy> (Last accessed: 05.04.20)

Fletcher, A. (2018) 'Peer observation of teaching: A practical tool in higher education.' *The Journal of Faculty Development*, 32(1), pp.51-64.

Hargreaves, D.H. and Hopkins, D. (1994) *Development planning for school improvement*. London: Casell.

Harris, A., 2004. Distributed leadership and school improvement: leading or misleading? *Educational Management Administration & Leadership*, 32(1), pp.11-24.

Haylock, D and Cockburn, D. (2013) *Understanding mathematics for young children: A guide for teachers of children*. London: Sage.

Heitink, M, Van der Kleij, B, Veldkamp, K. Schildkamp, and Kippers, W. (2016) 'A Systematic Review of Prerequisites for Implementing Assessment for Learning in Classroom Practice.' *Educational Research Review* 17 DOI:10.1016/j.edurev.2015.12.002.

Ho, D. and Kane, J. (2013) 'The Reliability of Classroom Observations by School Personnel. Research Paper. MET Project'. *Bill & Melinda Gates Foundation*. Available at: [https://danielsongroup.org/sites/default/files/inline-files/Reliability Observations School Personnel Gates.pdf](https://danielsongroup.org/sites/default/files/inline-files/Reliability%20Observations%20School%20Personnel%20Gates.pdf) (Last accessed 05.03.20)

Huffman, D. and Kalnin, J. (2003) 'Collaborative inquiry to make data-based decisions in schools.' *Teaching and teacher education*, 19(6), pp.569-580.

Humble, S. and Dixon, P. (2017) 'The effects of schooling, family and poverty on children's attainment, potential and confidence—Evidence from Kinondoni, Dar es Salaam, Tanzania'. *International Journal of Educational Research*, 83, pp.94-106.

Kaluge, L. (2018) 'An Estimation of Variances and Factors in Mathematics Attainment in Upper-Primary Schools'. *SHS Web of Conferences*, 42(2)

Lai, K and Schildkamp, K. (2013) Data-based decision making: An overview. In *Data-based decision making in education* (pp. 9-21). Springer, Dordrecht.

MacGilchrist, B., Reed, J. and Myers, K., 2004. *The intelligent school*. London: Sage.

Mertler, A. (2007). *Interpreting standardized test scores: Strategies for data-driven instructional decision making*. London: Sage

Meyers, C. and VanGronigen, B. (2019) 'A lack of authentic school improvement plan development: Evidence of principal satisficing behavior' *Journal of Educational Administration*, 57(3), pp. 261-278. DOI: <https://doi.org/10.1108/JEA-09-2018-0154>

Miller, P, Votruba-Drzal, E and Coley, R. (2019). 'Poverty and Academic Achievement Across the Urban to Rural Landscape: Associations with Community Resources and Stressors.' *RSF: The Russell Sage Foundation Journal of the Social Sciences*, 5(2), pp.106-122.

Muijs, D and Rumyantseva, N. (2014) 'Coopetition in education: Collaborating in a competitive environment.' *Journal of Educational Change*. 15. DOI:10.1007/s10833-013-9223-8.

Protheroe, N. (2001) 'Improving teaching and learning with data-based decisions: Asking the right questions and acting on the answers.' *ERs spectrum*, 19(3), pp.4-9.

Reynolds, D. David, R and Teddlie, C. (2000) *The International Handbook of School Effectiveness Research*. Psychology Press.

Schildkamp, K. (2019) 'Data-based decision-making for school improvement: Research insights and gaps'. *Educational research*, 61(3), pp.257-273.

Skedsmo, G. and Huber, G. (2019) 'Top-down and bottom-up approaches to improve educational quality: their intended and unintended consequences.' *Educational Assessment, Evaluation and Accountability*, 31(1), pp.1-4.

Vygotsky, L (1978) 'Interactions between learning and development'. *Readings on the development of children*, 23(3)

Welsh Government. (2017) Education in Wales: Our national mission Available at: <https://gov.wales/sites/default/files/publications/2018-03/education-in-wales-our-national-mission.pdf> (Last accessed: 14.04.20)

Welsh Government. (2015) *Pupil Deprivation Grant, Essential Guidance*. <https://gov.wales/sites/default/files/publications/2018-03/pupil-deprivation-grant-essential-guidance.pdf> (Last accessed 27.02.20)

Welsh Government (2014) *School Development Plans*. Available at <https://gov.wales/sites/default/files/publications/2018-03/schooldevelopment-plans.pdf> (Accessed 23.03.20)

West, A. (2007) Poverty and educational achievement: why do children from low-income families tend to do less well at school? *Benefits*, 15(3), pp.283-297.