



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
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MODULE CODE: ECEW7014

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Word Count: 4376

STUDENT NUMBER: 1706444

ASSIGNMENT TITLE:

**Equity and Curriculum Access: A Critical
Evaluation of Macro System Leadership and its
influence on Design and Technology Provision
in Welsh Secondary Schools**

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RESEARCH	For this assessment, you can use Generative AI to support you in research, including searching for bibliography, using tools to summarise, compare and interrogate materials.	Yes ☒ No ☐
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Use of Generative AI in Assessment

AI Acknowledgement

I acknowledge the use of Grammarly (<https://www.grammarly.com/>) on 29th April 2026 to check my work using the prompt(s):

- Please check the following text for readability, grammar and syntax.

I confirm that I have not presented any AI generated text as my own work. I confirm that I have copies of my drafts, notes, and other resources I used before, and after the use of AI tools which I may be asked to provide in evidence.

I acknowledge the use of ChatGPT (<https://chat.openai.com/>) on 22/04/2026 & 30/04/2026 to support my research using the prompt(s):

- Please suggest academic sources related to teacher recruitment and retention in Wales.
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Section 1

This assignment will examine whether macro-level leadership priorities shape micro-level decisions in schools, thereby directly affecting the status, participation, and visibility of Design and Technology (D&T) subjects in Welsh secondary schools.

Addressing leadership and policy priorities at the macro level is important to begin planning on reversing the decline in D&T enrolment. Focus will be on subjects defined by WJEC as Design and Technology disciplines, such as Engineering Design, Textiles, and Product Design (WJEC, 2024, 2025). These subjects embody practical skills and iterative processes valued in real-world contexts (Welsh Government, 2026). Although they are often not specifically classified as vocational in policy documentation, these hands-on skills develop critical and analytical thinking (WJEC, 2025).

Since 2002, D&T has been in a downward trend in GCSE uptake. This was initially expected following the removal of the subject as a compulsory component at Key Stage 3 in 2000. Following the educational reform of 2010, prompted by disappointing PISA 2009 results indicating that Welsh schools were underperforming compared to English schools (Bradshaw *et al.*, 2010), the Welsh Government placed greater emphasis on literacy and numeracy in the school curriculum. This affected other subject areas, including D&T, as demands on timetable allocation increased. This resulted in a reduction in available time for practical tasks, and teaching became focused on literacy and numeracy rather than practical work. Recent data suggests that uptake has fallen by over half since 2010 (Tuckett, 2022; DATA, 2023; Davies *et al.*, 2024; The Design Council, 2024). Due to this, it is thought that many schools experiencing budget reductions may have opted for a more theoretical curriculum as it requires fewer specialist teachers and less expensive equipment. However, this approach may ultimately hinder the student experience, which has an important role in effective practical learning. According to a report from the Welsh Government, areas such as Food and Nutrition, Fashion and Textiles, Graphic Design, and Resistant Materials have historically been part of D&T (Welsh Government, 2025a) but recent educational reforms and the development of the Curriculum for Wales have redistributed many of these subjects into different areas of Learning and Experience (AoLE), such as Food and Nutrition to Health and Well-being and Textiles and

Graphic Design to Expressive Arts (Hwb, 2020). While this redistribution reflects the Curriculum for Wales's priority on interdisciplinary learning, it may also inadvertently contribute to the dilution of D&T as a distinct subject. Arguably, this reduction in both the subject's visibility and its position as its own subject in secondary school may have unintentionally weakened the identity, visibility and status of D&T within schools (Bell *et al.*, 2017).

This assignment proposes that system-wide problems- teacher shortages, high delivery costs, and difficult leadership decisions further intensify the decline in D&T. Elevated costs and funding models that emphasise efficiency systematically marginalise subjects like D&T, emphasising the importance of evaluating and protecting funding for equity across subject areas (Welsh Government, 2025b).

Section 2

Bamford (2024) discusses in a Guardian article that Design and Technology is considered costly to run due to factors such as equipment upkeep, materials, and ongoing staff development (DATA, 2022, 2023). Financial pressures have led to reduced availability, with about 20% of schools in England and Wales no longer teaching the subject (DATA, 2022; Bamford, 2024). These changes are driven by sustained financial pressures throughout the education system. Estyn reports emphasise increasing strain on school budgets, with rising costs and challenges in long-term financial planning (Estyn, 2026). In addition, wider analyses suggest that, in real terms, per-pupil funding has declined since 2010 when adjusted for inflation, placing further pressure on schools to reduce costs. This would have led the school to make a difficult decision to cut courses, staff, student enrichment, and other activities. Work by Sibieta (2023) for the Institute for Fiscal Studies indicates that school spending per pupil in Wales fell by approximately 5–6% in real terms between 2010 and 2017, highlighting sustained financial strain in schools. Although these reductions were 3% smaller than the 8% reductions faced in England, they nonetheless contributed to increased pressure on school resources and capacity to deliver the full and varied curriculum (Sibieta, 2023).

The primary driver of change lies in the growing misalignment between national policy ambitions- particularly the promotion of skills-based and vocational education- and schools' capacity to deliver them effectively within existing structural, financial, and workforce

constraints, such as teacher shortages and retention. Recent reports from the Educational Workforce Council, Estyn and The Educational Endowment Foundation all state that teacher retention has been a growing issue. Figures suggest that 4% of teachers in Wales leave the profession in the first year, and that the teaching workforce fell by 2.4% in the academic year of 2024 (Estyn, 2024; EWC, 2025; Lea and Duff, 2025). While these are not as strained as England, which faces between 9-10% of its teachers leaving in the first year, it does suggest that this issue is a national problem. The Educational Workforce Council also recently commented that recruitment is most challenging in non-core subjects (EWC, 2025). While this is seen as more problematic in schools that serve a more deprived area (Lea and Duff, 2025; Joseph Rowntree Foundation, 2026). As D&T remains a non-core subject, the protection of skilled and experienced teachers must become a priority, particularly as the lack of visibility and available funding can have such a negative impact.

It has been widely recognised that D&T over the last decade has been in a sharp decline (Lucas, Hanson and Claxton, 2014; The Design Council, 2024). At a macro level, policy initiatives such as VET strategies and broader government priorities aimed at increasing skills-based training reflect a clear commitment to strengthening hands-on learning needed for workplace environments (Wilson and Harris, 2004; Welsh Government, 2026). However, this ambition appears to be broadly spoken about at the macro level, but shows budgetary pressures and making challenging resource decisions at both the meso and micro levels. According to a Welsh Government report, high-quality local authority support has become especially important for schools as they navigate rising costs and other budgetary pressures (Estyn, 2026). During the 2014 curriculum reform, Donaldson highlighted design and technologies' substantial contribution to the AoLE of Science and Technology. In this context, Donaldson suggests working closely and flexibly within other AoLE, which means that some Design and Technology subjects could be reallocated to different AoLE (The Design Council, 2024). This restructuring could involve integrating practical disciplines into areas such as science or expressive arts, which may be perceived as more cost-effective or simpler to deliver, particularly where assessment is predominantly coursework-based. Examples of this can be seen in the Art and Design Textile Design course, which has a similar focus to Design and Technology's Fashion Textiles (WJEC, 2024, 2025). The Royal Academy of Engineering highlighted that D&T and Engineering invisibility in Key Stage 3 (KS3, referred to as lower secondary) curriculum hours is

likely to affect the recruitment of Engineers in the future (Lucas, Hanson and Claxton, 2014). This adds to the questions about whether system-level decisions, while financially pragmatic, are inadvertently reshaping the purpose and educational value of Design and Technology.

Bamford noted in an article in *The Guardian* that Design and Technology is considered costly to run due to factors such as equipment upkeep, materials, and ongoing staff development. Financial pressures have led to reduced availability, with about 20% of schools in England and Wales no longer teaching the subject (Bamford, 2024). These changes are driven by sustained financial pressures throughout the education system. Estyn reports emphasise increasing strain on school budgets, with rising costs and challenges in long-term financial planning (Estyn, 2026). Sibieta (2023) reports in an Institute for Fiscal Studies analysis that school spending per pupil in Wales fell by approximately 5–6% in real terms between 2010 and 2017, highlighting sustained financial strain in schools. Although these reductions were 3% smaller than the 8% reductions faced in England, they nonetheless contributed to increased pressure on school resources and capacity to deliver the full and varied curriculum (Sibieta, 2023).

These factors suggest that the primary driver of change is the capacity to deliver such an ambitious policy. International and Welsh policy both emphasise vocational education and skills-based learning as central to economic growth, yet evidence indicates that schools face increasing challenges in funding and delivering such subjects. As a result, the decline in D&T could be a wider issue rather than an isolated subject concern. Without better guidance between policy and application, funding and staff retention, the promotion of D&T risks remaining aspirational rather than achievable, highlighting the need for more coherent system-level support to ensure equitable provision across schools. Perhaps a more centralised system could offer some answers.

Section 3

To critically analyse the role of system leaders, it is useful to compare how different educational systems operate. Singapore provides a clear example of a highly centralised and aligned system. The 2004 “teach less and learn more”. The initiative prompted significant system reform. While this came with challenges, improvement in international assessments suggests

a high level of system effectiveness (Ministry of Education Singapore, 2010). Pak Tee Ng highlights that the Singapore government invests heavily in education, including teachers, leadership, and continuous professional development, and does not cut funding; instead, it sees it as an investment in Singapore's future (Ng, 2014). Central to this success is the strong role of the Ministry of Education (MoE), which controls both macro- and meso-level functions, including teacher recruitment, professional development and policy implementation (Ng, 2008).

This centralisation enables a hierarchical model of system leadership, where strategic direction is determined nationally and implemented consistently across schools (Kools, 2017; Kools et al., 2020). It also reflects features of aligned system leadership, in which curriculum, assessment, professional development, and leadership structures operate cohesively towards shared goals (Ng, 2008; OECD, 2018). However, centralisation has some disadvantages. It has been criticised for limiting pathway options for non-academic students in an exam-driven environment. This is counterintuitive to Singapore's "teach less, learn more" mantra, as it could unintentionally marginalise a particular student demographic. It could also hinder pedagogical innovation by limiting teachers' fluidity in their curriculum and agency in their teaching decisions (AlAjmi and Alsaleh, 2023). This suggests that although centralised systems can ensure alignment, they may do so at the expense of flexibility and inclusivity.

In contrast, the Canadian education system reform reflects a more decentralised approach. The hierarchical structures have been softened in favour of more collaborative approaches with teachers and middle leaders (White, Cooper and Ahmed, 2017). According to a 2021 article in Education Sciences, implementing distributed leadership practices within schools encourages collaboration and innovation among staff while still supporting organisational structures. However, the article indicates that there is no direct evidence regarding how these practices affect overall system efficiency. Greater autonomy can support pedagogical innovation and responsiveness to local contexts but may also lead to variability in implementation across schools and regions. As a result, the effectiveness of this model depends on balancing professional autonomy with system coherence, highlighting a trade-off between consistency and flexibility.

The Welsh education system has a more blended approach between centralised and decentralised models of system leadership. At the macro level, the Welsh Government

establishes national priorities through policy frameworks. At the meso level, regional consortia support implementation through professional learning, school improvement strategies and collaboration across clusters. However, unlike Canadian school boards, these consortia do not hold governance powers such as control over staffing or budgets, which limits their influence over implementation. White, Cooper and Ahmed (2017) noted that the Canadian system operates through school boards (or districts), which hold significantly greater responsibility, including governance on local policy, staffing and budgeting (OECD, 2015; White, Cooper and Ahmed, 2017). While this may strengthen coherence within provinces, it also introduces the potential for variation between them. Similarly, although the Welsh model allows greater flexibility at the school level, the reduced authority of consortia may contribute to variability in how national priorities are enacted across schools.

At the micro level, school leaders are responsible for translating these policies into practice through curriculum design and resource allocation. However, the effectiveness of this system depends on alignment across the macro, meso, and micro levels. Evidence suggests that variation in how consortia interpret and prioritise policy can lead to inconsistencies in support and implementation (Estyn, 2022a). This raises questions about whether the meso level acts as a consistent enabler of system change or contributes to fragmentation across the system, depending on schools' incorporation of instruction from the meso system/consortia. Furthermore, at the micro level, school leaders must balance national expectations with local constraints, including funding pressures and staffing limitations, which may influence curriculum decisions. This has been seen in responses to various PISA outcomes (Bradshaw *et al.*, 2010; Gambhir, Dirie and Sizmur, 2020; Davies *et al.*, 2024). It's in this area where both Canada and Wales see the most inconsistency. This can vary between schools within a specific area, particularly if the area includes differences in socio-economic constraints.

This suggests that leadership at the school level is not entirely autonomous, but is constrained by structural and financial factors, potentially limiting the extent to which national priorities can be fully realised in practice. In this context, maintaining provision in resource-intensive subjects such as Design and Technology becomes increasingly challenging. Where such provision is reduced, there is a risk that students who would benefit most from applied and vocational learning are disproportionately affected, particularly in areas of socio-economic disadvantage. Both the Design Council and the Design and Technology Association

acknowledge the inequity between different socio-economic backgrounds (DATA, 2023; The Design Council, 2024). This triggers doubts about whether reduced access to high-quality Design and Technology facilities may reinforce existing inequalities, positioning such provision as an increasingly limited resource rather than a universal entitlement.

In this context, the role of system leaders becomes increasingly complex, as they must navigate competing priorities across macro, meso and micro levels of the system. This method of working across different systems is referred to as the School as a Learning Organisation (SLO) approach. Senge's (1990) concept of the learning organisation emerged from a critique of traditional organisational structures, which fragment knowledge and inhibit systemic understanding. He argues that five disciplines need to be aligned for organisations to become successful. These are systems thinking, personal mastery, mental models, shared vision and team learning (Senge, 1994). By positioning learning as a collective, continuous and system-wide process, he reframes organisations as dynamic entities capable of adapting and evolving through shared learning practices. While the SLO model originates from Senge's (1990) work on organisational learning, its principles are evident within the Successful Futures report, which promotes schools as collaborative learning communities (Donaldson, 2015, 2020). However, the extent to which these principles have been realised in practice remains dependent on system alignment and capacity (Pont, Nusche and Hopkins, 2008). While the SLO model promotes collaboration, professional learning and continuous improvement, its effectiveness depends on consistent implementation of systems thinking and sufficient capacity at meso and micro levels to apply the shared vision (Estyn, 2022b, 2022a). Where leadership struggles to make key decisions due to conditions, there is a risk of fragmentation rather than coherence. Consequently, the extent to which system leadership can effectively support subjects such as Design and Technology remains uncertain, particularly where provision is expensive and vulnerable to financial constraint.

By contrast, Singapore's education system, often characterised as a hierarchical and highly aligned model of system leadership, demonstrates stronger coherence between policy, professional development and classroom practice, supported by sustained investment in teacher development and centralised direction (Ng, 2014; Silió, 2023). This comparison suggests that alignment, rather than structure alone, may be a critical factor in ensuring consistent implementation of national priorities across schools. In the Welsh context, this

highlights the importance of alignment between macro-level policy and meso-level support structures. Without this, schools may lack the capacity to sustain resource-intensive subjects such as Design and Technology, despite their recognised importance within national policy frameworks.

Overall, this comparison suggests that the effectiveness of system leadership is not determined solely by structure, but by the degree of alignment across the system. Singapore demonstrates how strong alignment can support consistent implementation, while Canada illustrates how increased autonomy can promote innovation but risk variability. Wales, as a hybrid system, faces challenges in achieving this balance, particularly when policy ambition and system capacity remain misaligned.

Section 4

A clear example of system alignment in theory and policy implementation is the introduction of the Curriculum for Wales, which sought to establish a coherent national vision for education based on the four purposes outlined in Donaldson's Successful Futures report (Donaldson, 2015, 2020). At the macro level, this policy set out a shift towards skills-based learning, interdisciplinarity and greater school autonomy. At the meso level, organisations such as Medr, which oversees funding and regulation across the tertiary sector, and the National Academy for Educational Leadership (known as DYSGU), which supports leadership development and collaboration, play a key role in translating national policy into practice. At the micro level, school leaders have been responsible for translating these priorities into curriculum design and classroom practice.

However, while the policy demonstrates clear intent at the macro level, the extent to which it has been successfully implemented depends on the alignment between the macro and implementation levels. In practice, variation in interpretation at meso and micro levels, combined with constraints such as funding and staffing, has led to uneven implementation across schools (Estyn, 2022a, 2022b). A further review from 2022 also confirmed that support “provided by local authorities and regional consortia is not bespoke to the needs of providers and they do not evaluate the impact of their work effectively enough” (Estyn, 2022a). This highlights that system alignment is not achieved through policy alone, but requires coherence

between policy ambition, system support and school-level capacity to ensure continuity and that change is reflected and evaluated regularly. At the meso level, regional consortia have facilitated collaboration through cluster working, professional learning communities and cross-school partnerships, enabling schools to share resources, expertise and practice. System change within the Welsh education system has been mobilised, in part, through the development of professional networks and collaborative structures across schools (Estyn, 2022b). Townsend's study of school networks suggests that system change is increasingly driven by hybrid and flexible forms of leadership, where formal leadership structures operate alongside informal, collaborative, and inquiry-driven practices across schools. This highlights that system alignment is not achieved through policy alone, but requires coherence between policy ambition, system support and school-level capacity to ensure continuity and that change is reflected and evaluated regularly. At the meso level, regional consortia have facilitated collaboration through cluster working, professional learning communities and cross-school partnerships, enabling schools to share resources, expertise and practice. System change within the Welsh education system has been mobilised, in part, through the development of professional networks and collaborative structures across schools. Townsend's study of school networks suggests that system change is increasingly driven by hybrid and flexible forms of leadership, where formal leadership structures operate alongside informal, collaborative, and inquiry-driven practices across schools (Townsend, 2015). These networks create opportunities for leadership and teaching to extend beyond individual schools through the development of new leadership roles, the sharing of good practice, and professional learning. However, the study also highlights tensions within this approach, as relationships between schools must be actively developed and sustained, and the distribution of leadership across networks can challenge traditional hierarchies, potentially causing tension. Hoppe and Reinelt (2010) imply that networked approaches alone are not enough to guarantee effective system change, as their impact is reliant on good quality relationships within the network, shared purpose and the balance distribution of leadership across the system (Hoppe and Reinelt, 2010)

Leadership practices described by Harris, including facilitation, mobilisation and subsidiarity, should be clear and evident within systems, as responsibility for implementation can then be distributed across system leaders, senior leadership teams and teachers. System leaders must

play a key role in advocating for decisions and supporting professional learning, while school leaders act as both facilitators and gatekeepers, determining how policy was enacted within local contexts (Harris, 2010, 2013). As a result, aligned purpose between teachers and leadership is critical in shaping the extent to which change can be realised in practice.

Teacher collaboration occurred primarily through professional learning communities, cluster working and cross-school networks, enabling the sharing of practice and resources (Hoppe and Reinelt, 2010; Townsend, 2015). Hoppe and Reinelt describe leadership as networks that enable the efficient sharing of information, resources and expertise across a system. Network structures that combine bonding (trust within groups) and bridging (connections across groups) are particularly powerful, as they support both efficiency and innovation within systems. As a result, well-developed networks enable leaders to mobilise others more effectively, align efforts across contexts, and respond to complex challenges through shared knowledge and coordinated action.

Consequently, while system change in the Welsh educational system since the beginning of educational reform has depended on the extent to which leadership practices are consistently enacted across the system, its success has also depended on the extent to which they are consistently enacted. What is clear from that mobilisation alone is that alignment does not ensure itself, and that variation in leadership capacity and engagement is essential at all levels.

Section 5

The Curriculum for Wales has been known for its flexibility and professional agency in how subjects are taught. However, there have been questions that its broad and loose structure introduces ambiguity in curriculum content and expectations (Roberts and King, 2021). Roberts and King argue that the varied interpretation across schools could potentially undermine system coherence and contribute to inconsistencies in subject provision. This type of ambiguity could inadvertently dilute subjects within an AoLE and exacerbate disparities in how subjects such as Design and Technology are prioritised and delivered. add to the issue, differences in school capacity, including staff retention, maintenance and resource budgets, as well as the socioeconomics of an area, further complicate these inconsistencies (Estyn, 2026; Joseph Rowntree Foundation, 2026). It could be discussed that ambiguity within policy at the meso

level, combined with inequitable system capacity at the micro level, may inadvertently dilute subject identity within the AoLE, particularly for subjects such as Design and Technology that rely on clearly defined knowledge, skills and resource-intensive delivery (Roberts and King, 2021; Dauncey, 2024). This type of decentralised system leadership, while attempting to grant school agency within its policy, could also create disadvantages between schools within a consortium, depending on how budgeting and curriculum are managed.

The system provides clear examples of targeted and effectively ring-fenced funding designed to address inequality. This is most notably through the Pupil Development Grant (PDG). This funding is specifically allocated to support learners from low-income households and is a central policy mechanism for tackling the impact of poverty on educational attainment (Tiesteel, Grigorie, *et al.*, 2024; Welsh Government, 2025b). The PDG is allocated based on levels of socio-economic disadvantage and poverty. Its use must improve outcomes for these learners, demonstrating a macro-level ability to structure and protect funding allocation (National Assembly for Wales, 2018; Tiesteel, Grigorie, *et al.*, 2024; Tiesteel, Watkins, *et al.*, 2024).

However, while such funding streams demonstrate that the Welsh Government can protect resources to support specific priorities, no equivalent protection exists for resource-intensive subjects such as Design and Technology in Welsh Education. When discussing child poverty, reports from the Joseph Rowntree Foundation consistently show that children being raised in poverty have a lower attainment rate and significantly fewer opportunities than students who do not (Joseph Rowntree Foundation, 2026). Schools in socio-economically deprived areas are often faced with greater resource and budgeting pressures, which can limit curriculum provision and access to enrichment opportunities (Estyn, 2022a, 2026; OECD, 2025; Joseph Rowntree Foundation, 2026). Conversely, schools in areas of higher socio-economic wealth are better positioned to retain funding for resource-intensive subjects like D&T due to greater access to funding, onsite facilities and experienced staff. This implies that there is a greater risk that learners in deprived areas have reduced access to D&T education, reinforcing inequities in opportunity. Furthermore, this trend appears to contradict broader UK and Welsh economic priorities, which reiterates the importance of developing hands-on and vocational skills and supporting multiple pathways into technological and STEM careers (Ofsted, 2011). Without targeted intervention to secure ring-fenced funding in schools, this suggests that

current funding and system structures may inadvertently undermine long-term ambitions for a skilled and economically resilient workforce (DATA, 2023). The Sutton Trust (2025) reported and submitted a letter of evidence to parliament, showing that socio-economically disadvantaged schools face heavier financial pressure while funding does not fully meet the needs of the students (The Sutton Trust, 2025; Tibbs, 2025). Similarly to what would be necessary for D&T, the Sutton Trust proposed that the government “ringfenced” a proportion of school funding to assist in a National tuition scheme aimed at covering 75% of tuition costs for eFSM students to reduce the attainment gap (The Sutton Trust, 2025). This implies that protection and guarded expensive provision has been requested by other bodies to the macro system, to aid the delivery at the micro level. This furthers the argument that Ring-fenced funding at the macro level would help protect decline provisions regardless of local capacity, reducing the subject’s position as a luxury and limiting the impact on pupils from low-income backgrounds.

Over time, such patterns do not help with the decline in both the quality and visibility of D&T provision, further compounded by teacher recruitment and retention, lack of specialist subject expertise and marginalising student experience. In reports written by the Design and Technology Association and echoed by the Design Council, founder Jon Ives state that if nothing is done to change the trajectory of the decline, further erosion of the subject would be inevitable, as the subject becomes a ‘*nice to have*’ instead of the core subject that it once was (DATA, 2022, 2023; The Design Council, 2024).

Design and Technology should be a protected provision, accessible to all learners, rather than disproportionately available in more advantaged schools, to continue the development of Wales’s future creative thinkers and problem solvers. To achieve this, policies will need alignment across macro, meso and micro levels, ensuring that funding and school-level practice work coherently to protect and sustain equitable provision.

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