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50 years of PBL: policy, politics and practice

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Genesis

During the past five years I have co-authored several reports for the Edge Foundation in which the topic of project-based learning (PBL) has featured. This paper, which reflects on 50 years of PBL in the curriculum of English schools and colleges, began as a conversation with Andrea Laczik (Director of Research at Edge) about my personal experience of PBL as a student, teacher, manager and researcher – experience that has encompassed the waxing and waning of PBL in the classroom as policy and practice have changed. Andrea and I felt that PBL was definitely a topic that could sit within the *Learning from the Past* series. Alongside this, our ongoing life histories research on the impact of BTEC qualifications on employment and career trajectories (McGrath and Madhvani, 2023) was demonstrating how a project-based approach, with a mix of classroom and workplace learning, had provided a real world experience that launched successful careers within a diverse range of industries.

The paper that has emerged from that conversation does not debate the pros and cons of PBL: there is already a body of research literature on the pedagogy including some very good reviews and evaluations (e.g. Kokotsaki et al., 2016). In this paper we have focussed instead on how policy, politics and practice can either facilitate or impede PBL, culminating in a model that draws upon Bronfenbrenner's ecosystems approach. This model shows how PBL is best encouraged by an environment in which qualifications, funding, teaching styles and modes of assessment are aligned to support its delivery, but it also shows how personal agency can bring PBL into the classroom despite an unhelpful environment.

The format of the paper is structured by the five decades that have passed since I first encountered PBL as a pupil in the 1970s. The content of each section gives an overview of some of the key policy decisions of that decade, with examples of qualifications from that time that included a PBL element. Illustrative comments in each of the sections provide a sense of perspective from the lived experience of people who studied, or taught, or managed the featured courses. These are drawn from conversations that took place whilst writing this paper, and I would like to express my thanks to everyone who made time to speak with me.

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1. Introduction and context

1.1 Context

Project-based learning (PBL) is a current topic of interest amongst educationalists and researchers seeking a broader approach to delivery and assessment in English schools. A new generation of teachers, educated in and now delivering an exam-based curriculum, is being introduced to the concept of PBL in the classroom. Programmes such as Ford New Generation Learning, an approach that has embedded PBL in school districts across the United States, have been influential in the UK (Barnard, 2019). However, practitioners who are in a position to reflect on past decades can often point to examples of successful PBL much closer to home, and this paper considers the waxing and waning of PBL in classrooms in England over a period of 50 years.

1.2. Mainstream 14-19 qualifications since 1944

The 1944 Education Act made schooling compulsory between the ages of 5 and 14, and its implementation resulted in three types of secondary school being created across the country. This was heavily influenced by the findings of the Norwood Committee (1943), which had concluded (with no clear evidence) that there were three different types of learners, conveniently requiring three types of school – grammar, technical and secondary modern (Moyer, 1972). Apart from the minority of pupils who were placed in grammar schools, young people usually left school with no formal qualifications. Those who stayed in school until they were 16 took the School Certificate, or the Higher Certificate if they stayed until 18. Both of these were replaced in 1951 by the General Certificate in Education (GCE). GCE Advanced level was an academic, exam-based course designed as an entry qualification for those young people who progressed to higher education, which was at that time just 3.4% (Bolton, 2012, p14). GCE Ordinary level was an earlier exit point for those who chose to enter the job market instead, and many employers began to specify five O levels as an entry requirement. This severely disadvantaged those young people who had not attended a grammar school, since most of them left school with no way of recording their achievements. In 1965 the Certificate of Secondary Education (CSE) was introduced to fill this gap. It became the standard offer in secondary modern schools, with Grade 1 equivalent to an O level pass, though CSE was never accorded the same status by employers as the O level (Gipps, 1986).

The A level has dominated 16-18 education for over 70 years and, despite becoming the mainstream qualification, the current content and assessment of A level has changed little from the academic exam-based course originally designed for the small minority of learners aiming for university. Vocational alternatives to A level, including GNVQ, AVCE, and 14-19 Diplomas have included project work, but all of these policy-driven initiatives have suffered from an unfair and adverse comparison with A levels, leading to academic drift and a perception of 'second best', resulting in a short lifespan. One exception has been the BTEC National Diploma, which emerged in the 1980s to meet employer demand for an alternative curriculum and means of assessment, and rapidly spread across many sectors of industry. A common characteristic was a project-based approach rooted in real-world assignments that prepared learners for employment or higher education. At the time of writing, many BTEC courses are being defunded despite fierce opposition, 'to allow T levels to flourish' (DfE, 2023, p3).

In contrast, in 14-16 education the academic/vocational divide was supposedly bridged in 1986 when O levels and the CSE were replaced by the General Certificate of Secondary Education (GCSE), which would be assessed by a mix of exams and coursework. Presented as a single qualification for all school leavers, the GCSE actually operated in ways that maintained much of the GCE/CSE divide (Gipps,1986). It did introduce the possibility of project work across the curriculum, but concerns about the cost and quality of teacher assessments rapidly reduced the coursework element of most GCSEs.

"Looking back, it would be more accurate to say that I had a portfolio of work for each GCSE subject because I don't think much of it would have met what I now think of as the criteria for a project. The first time I can recall doing a 'project' was my final year dissertation at university, but my working life is entirely project-based."

Since 2015, a move to end-point assessment in GCSE has increasingly pushed school assessments towards mock exams, with a corresponding emphasis on the teaching of revision and exam skills (e.g. Baird et al., 2019), and little scope for PBL as an approach to delivery.

1.3 A *National* Curriculum?

For much of the 20th century, the learning experience was determined by a three-way partnership in which central government devised macro policy for the curriculum, local education authorities organised for this regionally, and pedagogy was left largely to deliverers, i.e. schools and teachers (Braund, 2010). The first National Curriculum was introduced in 1988 and has been frequently reviewed and revised. This is partly attributable to our two-party system of government in which education policy is often 'political' leading to vacillation rather than continuity. Both content and delivery of the National Curriculum have been modified since its introduction, though overall it has maintained a relatively narrow academic approach with a heavy burden of testing at Key Stages (ages 7,11 and 14).

The term national curriculum is something of a misnomer because it has never applied to all schools. The independent sector has always been exempt and, at present, only a minority of secondary schools are required to follow it because the sector is dominated by academies: these too are exempt, as are free schools including studio schools and university technical colleges (Roberts, 2021). In practice, the government has an alternative and effective means of controlling what is taught in state schools via the public examinations system, which has acted as 'a sufficient brake on teacher directed innovations' (Shipman, 1981, p22). Currently, the combined influence of the Education and Skills Funding Agency (ESFA) and the School Performance Tables act as important drivers to deliver the national curriculum: removal of a qualification from the ESFA list inevitably results in the loss of that course. Conversely, a qualification being both funded and recognised does not mean that it will be widely delivered; there may still be resource issues that prevent some schools and colleges offering it. For example, the Extended Project Qualification is ESFA funded, carries UCAS points, contributes to the UCAS personal statement and is well regarded by university admissions tutors. Unfortunately, it requires a degree of teacher supervision that some institutions may struggle to provide, which perhaps explains why only c40k students take it (Richmond and Regan, 2023).

1.4 Extracurricular activities and assessment

Extracurricular qualifications or awards can offer far more potential for PBL than the mainstream courses that learners are following, and some have been remarkably successful, proving popular with young people over many decades.

One such example is the Duke of Edinburgh Award (established 1956) in which 'the project' is a major element of assessment. The choice of activity is extremely broad and assessors, often coming from the local community, are selected for their competence and expertise in relation to the young person's choice of activity. There are no academic entry requirements, and every participant can potentially achieve at the highest level. It is one of the best known ways to get accreditation of skills like teamwork and leadership, an individual scheme outside the formal education system (though often run in schools), relatively cheap (£25.50), and global. Another example is Young Enterprise (established 1962), a charity inspired by the belief that an academic education on its own is not enough to enable young people to reach their potential. An extensive range of educational opportunities

includes many project-based activities that reach thousands of students in participating schools from primary to sixth form. Alongside the development of project skills, young people are also being equipped with skills and knowledge that prepare them for the world of work, something that policy makers have been seeking to achieve for decades (Huddleston, 2020).

"Young Enterprise was the perfect project model. Students took on all the essential responsibilities of a business, they worked with 'real' business people, usually on their premises, and absorbed their values away from the shadow of their teachers. And they had to assess and present what they'd achieved. The DofE Award could provide similar opportunities to develop projects based on personal interests." (Teacher)

However, such activities rely on teachers being able to volunteer their lunchtimes and evenings which, for many, is incompatible with raising families of their own (Howes, 2023).

1.5 Employer engagement

There is an extensive literature on the role of employers in qualification design, delivery and assessment and, whilst reporting this is beyond the scope of this paper, it is important to note that the UK does not have mechanisms to allow effective relationships between employers and educators (e.g. Keep, 2015), and the rapid abandonment of qualifications such as the 14-19 Diplomas questions whether the argument that employer input is 'valued and crucial to the development of well regarded vocational qualifications' can be sustained (Huddleston and Laczik, 2018, p272).

"Employer input was invaluable but needed huge amounts of time to set up. A few professional bodies went out of their way to provide it and that was pure gold. Annual one-off contact was easier for them than developing programmes, though, since employers received neither support nor guidance from government that would have encouraged systematic, longer-term investment of their time in school." (Manager)

1.6 Summary

At the time of writing, PBL seems to have lost its place in the mainstream 14-19 curriculum because of the heavy emphasis on end-of-course assessment. Its apparent merits have, however, enabled it nonetheless to survive in different contexts; could it yet provide a way to improve curriculum and assessment for all young people?

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2. Parameters of the study

There is already a wealth of published research on PBL, including literature reviews and evaluations (e.g. Kokotsaki et al., 2016). This paper therefore does not focus on PBL itself, but on the policy and practice of each decade and the qualifications that emerged. Our thinking was also informed by conversations with former practitioners and learners who reflected on their past experience of the classroom, adding a valuable personal perspective to this paper.

Definitions of PBL vary, but for the purpose of this paper, we have used commonly agreed criteria (e.g. Rogers and McGrath, 2021) against which to consider qualifications and initiatives that offered potential for PBL:

1. Does the 'project' begin with a clear question or goal?
2. Are there strong links to a real world problem?
3. Is the teacher acting as a facilitator?
4. Are higher order thinking skills being developed?
5. Is the 'product' presented to a 'real' audience?
6. Does it cross curriculum boundaries?
7. Is it knowledge-engaged?
8. Are real skills being learned?

These eight criteria are used in Tables 2-6 which highlight qualifications or initiatives that had potential to provide PBL opportunities in each decade.

The scope of this paper has deliberately been limited to 14-19 education. This is partly pragmatic – covering all ages would be a huge piece of work - but it is also because we have frequently encountered the view that it is when students begin GCSE study that any thoughts of PBL tend to disappear. Assessment drives teaching and, as schools prepare students for a swathe of examinations at the end of year 11, teaching to the test may seem a necessary strategy. The decision to focus on England rather than take a four nations approach was entirely pragmatic, based on the available time and intended length of this paper.

Finally, this paper does not argue a case for or against PBL, but it is written from a perspective of belief in its value as part of a balanced education that can prepare young people to be active citizens, able to contribute economically, socially and culturally to their community and to lead a fulfilling life.

3. Five decades of PBL – an overview

This paper describes some of the key policy initiatives that have helped or hindered PBL approaches in the classroom over five decades, with sample qualifications and courses considered against our eight criteria. Table 1 (below) gives an overview by decade, and Sections 4-8 consider each decade, from the 1970s to the 2010s.

Table 1: An overview of the PBL environment from 1970 -2019

Time	Overview	Examples
1970s	This pre-national curriculum era enabled qualification initiatives that fostered and evaluated a wide range of learning experiences and assessment techniques. However, the decade also showed that teachers resistant to change could maintain familiar approaches; comprehensives were often a version of grammar schools with a few practically-based subjects for some pupils.	• Nuffield Science • Geography for the School Leaver • A level Psychology
1980s	A decade characterised by a dramatic shift to the centre, with the first National Curriculum and a new school-leaver qualification (GCSE). There was considerable potential for PBL in both GCSE and TVEI (which specified employer involvement though this was patchy). The BTEC emerged as a response to employer demand, was project and assignment based and included work placements.	• Technical and Vocational Education Initiative (TVEI) pilot 1983-87 • General Certificate of Secondary Education (GCSE) • BTEC National Diploma
1990s	A focus on structural change increasingly centralised education, diminishing the power of elected authorities and creating opportunities for the private sector to take over schools and administration. The GNVQ, a national initiative, was project-based and popular with students, but in schools there was little vocational experience, and scope for PBL was not fully realised.	• General National Vocational Qualification (GNVQ) 1992-2007 • Advanced GNVQ 1992-2000
2000s	Good intentions marred by a strong case of policy amnesia? Significant investment in the AVCE and 14-19 Diplomas failed to produce a vocational curriculum that could compete with A levels. However, financial support for widening participation initiatives demonstrated that schools and universities were not short of practical ideas that could bring projects into the classroom.	• Advanced Vocational Certificate of Education (AVCE) 2000-2004 • 14-19 Diplomas 2008-2013 • School2Uni (widening participation project)
2010s	The age of austerity impacted on school budgets and family finances, reducing educational opportunities for many young people. A curriculum focussed on traditional academic subjects assessed by exams further restricted choice. Widening participation funding ended and PBL initiatives were rapidly closed, though schools continued to champion PBL if resources permitted.	• Project Qualifications (Foundation, Higher, Extended) • Employer-led projects (University Technical Colleges) • BSc Nursing Studies
Note: Where dates are stated, these are for national qualifications that were short-lived government initiatives.		

4. The 1970s: policy and practice

4.1 Environment and political climate

At the start of the decade both primary and secondary education had seen some significant innovations built on new ideas about education that emerged in the 1960s. Influenced by the Plowden committee (1967), primary school practice had moved away from whole class methods that depended on drill, practice and rote learning to more child-centred approaches and informal activity-based learning. In secondary schools a government directive had required local authorities to submit plans for reorganising secondary education in their areas on comprehensive lines, thereby ending selection at eleven-plus and eliminating separation in secondary education (Yates, 1971). By the end of the 1970s the majority of secondary schools were comprehensive, with the period of most rapid expansion being during Mrs Thatcher's tenure as Education Secretary (1970–1974), despite her personal support for grammar schools (Simon, 1991).

In the absence of any national curriculum, teachers and schools had considerable freedom to decide what to teach and how to teach it (James, 2018). The rapid growth of comprehensive schools offered new opportunities for curriculum development (e.g. combining subjects into themes, such as 'integrated science') which could also impact on delivery. However, uptake of the more innovative schemes that comprehensive education might have facilitated was not widespread and the curriculum of the new schools often became a version of that provided by the old grammar schools with the addition of some vocational subjects for those who might benefit from a more practically-based curriculum (Goodson, 1988). The school examinations framework in the 1970s was dominated by GCE O and A levels (at 16 and 18), with the CSE providing an alternative to O levels for those young people who were better-suited to a less academic approach to learning and assessment. Raising of the school leaving age from 15 to 16 in 1973/4 meant that all young people would now take examinations before leaving school. The Schools Council, established in 1964 to coordinate secondary examinations and advise government, also involved practitioners in the development of a curriculum and pedagogy that acknowledged current educational theories and research (Fisher, 1984).

A pivotal role in education history is attributed to Labour Prime Minister James Callaghan's Ruskin College speech in 1976, which referenced parental suspicion that teaching methods were undermining performance in reading, writing and arithmetic and questioned the variation in curriculum between schools throughout the country. It also recognised a need to enhance vocational provision in schools in response to complaints from employers that new recruits from schools did not have the basic tools required to do their job, a call still familiar today (Silverwood and Wolstonecroft, 2022). The Ruskin speech has been credited with paving the way for a fundamental change in education that broke the tripartite relationship between government, schools and local authorities that existed throughout most of the 20th century (Braund, 2010), and a move towards universal standards and the concentration of power within an official regulatory body, Ofsted.

4.2 1970s: Initiatives that facilitated a PBL approach

Table 2 outlines three course examples. Two of these were high profile initiatives supported by the Schools Council (Nuffield Science and Geography for the Young School Leaver), the third (A level Psychology) received little attention at the time of its introduction though it has since become one of the most popular A level subjects (despite the loss of the original project-based approach).

The Nuffield Science project had begun in the 1960s with the production and piloting of material to support a new approach to the teaching of science. Key principles were that delivery of the science curriculum

should be inquiry based, with teaching that develops understanding, and pupils learning by doing (Kelly and Dowdeswill,1970). After a slow start it became very widely accepted, particularly after the Nuffield Combined Science course, derived from the three distinct science courses, was introduced in 1970 for pupils in the first two years of mixed-ability secondary schools.

"I've always had an enquiring mind and I think Nuffield science fitted with that. Even at O level, you worked in an enquiring way, undertaking experiments to investigate matters. That understanding of why you were doing something; the purpose of the experiment, then writing it up in a report, with a clear structure: background, method, results, discussion and then the conclusion, was how we were taught. It meant we understood the concepts, and could apply what they actually meant." (Student)

Geography for the Young School Leaver (also known as the Avery Hill project) was an initiative for 14–16-year-olds. Higginbottom (2018) describes how student materials and teacher guides created for the project supported a 'rational objectives' approach to curriculum that focused on knowledge, understanding and skills, but also the engagement of attitudes and values. The content could be covered by consideration of the local environment and community, and the themes studied could be assessed by either the CSE or the GCE examination, making GYSL suitable for all levels of ability. GYSL had a huge national impact, with three-quarters of geography teachers becoming familiar with the project even if their school did not teach it (Higginbottom, p65).

"There was some forward looking work like the Avery Hill Project, which wanted to develop pupils skills by use of fieldwork and raise awareness of social, political, and environmental issues. From what I recall take up for Avery Hill was popular in some urban areas like Bristol and London but my school at the time was not forward looking." (Teacher)

The Psychology A level emerged from a college/polytechnic background, which perhaps explains its emphasis on project work in a qualification characteristically associated with an exam-based curriculum. Students produced a portfolio of at least ten reports of project work, drawing on topics from across the syllabus and using a range of data collection and analysis techniques. Assessment by viva demonstrated that students could explain and justify their projects. This type of assessment is time and resource intensive and not feasible if the subject becomes popular; in 1972 there were just 275 candidates, by 1997 there were 28,000 (QCA, 2001).

4.3 Summary

This pre-national curriculum era enabled qualification initiatives that fostered and evaluated a wide range of learning experiences and assessment techniques. However, the decade also showed that teachers resistant to change could maintain familiar approaches; comprehensives were often a version of grammar schools with a few practically-based subjects for some pupils.

Table 2: Curriculum, qualifications and project-based learning in the 1970s

Our PBL criteria	Nuffield Science[1]	Geography for the School Leaver[2]	A Level Psychology[3]
Begins with a clear question or goal?	Guided choice within the specialist options, Student identifies a problem for study.	Emphasis on formulation of objectives and methods of evaluating them.	Each project began with a hypothesis raised from syllabus content.
Strong links to a real world problem?	May be of general relevance rather than a specific problem.	Themes should be current and relevant, e.g. focus on local environment and community.	Data was collected from human subjects, so projects naturally linked to real life.
Teacher as facilitator?	Yes, but initiative lying with the student who takes increasing responsibility.	Delivery methods should encourage full student involvement and participation.	Teacher had to approve the hypothesis and oversee conduct but the project was student-led.
Higher order thinking skills?	Self-direction, judging when to seek help. Faced with a genuinely open ended situation.	Topics should be concerned with all aspects of intellectual development.	Creativity, analysis, ability to draw valid inferences, conclusions. .
Product presented to a real audience	Teacher assesses the stages of work not just the product. External moderation.	Dependent on exam board chosen but all had potential for display or presentation.	Student justified their project portfolio in a viva with a visiting examiner.
Does it cross curriculum boundaries?	Could do, depending on colleagues' interests and available options.	It could, e.g. a residential project taking account of the needs of all members of the local community.	Projects could link two areas of the syllabus and even overlap with other A level subjects.
Is it knowledge engaged?	Understanding of fundamental principles meant students worked things out themselves.	Emphasis not just on facts but also understanding of ideas, and engaging values and attitudes.	Every project began with theory and the portfolio had to show knowledge of the entire syllabus.
Are real skills being learned?	Yes, project developed self-reliance and responsibility for own progress.	Range of skills: interpret data, analyse text, communicate via writing, drawing and discussion.	Independent research skills and report writing in a format that mirrored journal articles.

[1] Using an example of an A level Chemistry course.
[2] An approach to curriculum, not a syllabus, and could be assessed by CSE, O or A levels.
[3] Example of delivery that was student-directed, but in some colleges delivery was teacher-led.

5. The 1980s: policy and practice

5.1 Environment and political climate

Margaret Thatcher came to power in 1979 on a manifesto that planned to halt and reverse the comprehensive school policy, but public opinion was firmly against a return to selection. The 1980s did, however, become a decade that radically changed the structure of education in England. The curriculum debate begun by Callaghan's Ruskin speech in the previous decade began a process that Thatcherism embraced. By the end of the decade, the 1988 Education Reform Act had transformed the educational landscape: the power of local authorities had been considerably reduced, schools were responsible for their own budgets, governing bodies had significant influence in every school, teacher involvement in the curriculum had been drastically reduced, the first National Curriculum had been produced and the GCSE had replaced O level and CSE. The Schools Council, established in 1964 as a national forum that brought together central government, local authorities, teachers' organisations, employers, parents and examining bodies, was clearly not part of the Thatcher vision and was disbanded in January 1984.

Two significant curriculum initiatives were rolled out during the decade, with the first of these bypassing even the Department for Education and Science. The Technical and Vocational Education Initiative (TVEI), piloted 1993-97, had a huge budget, estimated as being over £1 billion by its end (Williams and Yeoman, 1993) and was operated through the Manpower Services Commission via the local authorities, whose participation was voluntary, as was that of schools and colleges. TVEI took up 30% of the curriculum and was teacher-assessed by the completion of five assignments. A Record of Achievement enabled students to contribute to the assessment of their work. The remaining 70% of the curriculum was spent in non-TVEI classes, taking a range of qualifications alongside other students. In 1997, the TVEI Extension offered flexibility that opened up the TVEI experience to a wider range of students. That this coincided with the introduction of the General Certificate of Secondary Education (GCSE) in 1986 was a contributory factor in TVEI's demise. The GCSE was launched as a single qualification for all 16-year-olds, but differentiated exam papers and/or questions meant that some candidates would not be eligible for the higher grades. In effect, it maintained the GCE/CSE divisions within a common examining system (Gipps 1986). However, a significant proportion of assessment was under teacher control, with more project-based work across the curriculum.

5.2 1980s: Initiatives that facilitated a PBL approach

Table 3 outlines three courses with the capacity to support PBL. Whilst TVEI and GCSE were national government initiatives, the BTEC National Diploma emerged in response to employer demand.

TVEI assignments could be novel, cross-curricular and rooted in the local community, encouraging a problem-solving approach, applied activities and connection with the world of work. Objectives covered generic skills, there was no strongly defined content and students could refine suggested topics in line with their own interests. Cotter (1991) found that TVEI pilot teachers were increasingly seen to be demonstrating how to plan and conduct cross curricular projects, how to emphasise the applied aspect of learning and how to use new teaching styles to support this learning. A strong role for local employers was envisaged, though in practice any involvement beyond provision of work experience appeared to be limited (Jamieson,1993).

TVEI created problems for staff when it was extended to schools. It pushed the line that what we were doing was inadequate, and they were here to stop us wasting our pupils' time. Some of their good TVEI 'field workers' saved this however, because they were prepared to relate to the good stuff – employer involvement and so on – that we already did." (Manager)

Suffolk Science was an example of a coursework-led assessment framework for GCSE science. It concentrated on practical and process skills with a smaller body of scientific content than was required for individual science subjects, and the teaching of each topic was to be understandable, rich in opportunities, relevant, accessible, useful and useable for further study, problem solving and enjoyment. Teacher assessment was both formative and summative, and had three levels to ensure that all students could be accredited for what they had achieved. Assessment techniques included allowing a student to respond orally to a question in order to ensure that scientific understanding could be accredited for all students regardless of their writing skills (Morton, 1995). The Suffolk scheme demonstrates the flexibility of the early GCSE frameworks and potential for project-based learning, but it would be misleading to assume that all GCSE courses were operated in this way.

The BTEC National Diploma, a vocational alternative to A levels, emerged to meet employer demand for a curriculum and assessment that prepared young people for work through an assignment-based integrated course using a student-centred pedagogy (Fisher, 2003). Many courses developed substantial work placements where knowledge, skills and understanding could be assessed by performance in the job role. These varied from one day per week to eight-week blocks. College assignments and projects were job-related, and teaching staff had industry experience.

"Our BTEC students were in the workplace every Thursday, so we tried to make their assignment briefs sufficiently flexible to be relevant to any placement. Theory was taught in a way that connected with real world issues so they could apply it to their projects and build a strong portfolio for external moderation. The teaching teams were cross-faculty and cross-curricular." (Lecturer)

"Looking back, it would be more accurate to say that I had a portfolio of work for each GCSE subject, because I don't think much of it would have met what I now think of as the criteria for a project. The first time I can recall doing a 'project' was my final year dissertation at university, but my working life is entirely project-based." (Student)

5.3 Summary

A decade characterised by a dramatic shift to central control, with the first National Curriculum and a new school-leaver qualification. There was considerable potential for PBL in both GCSE and TVEI (which specified employer involvement though this was patchy). The BTEC emerged as a response to employer demand, was project and assignment based and included work placements.

Table 3: Curriculum, qualifications and project-based learning in the 1980s

PBL criteria	TVEI pilot 1983-87[1]	BTEC National Diploma[2]	GCSE (using Suffolk Science as an example[3])
Begins with a clear question or goal?	Topics were suggested by the teacher but students could redefine to match their interests.	Every assignment began with a clear brief related to the curriculum and the workplace.	Topics explored students' own ideas so they could then plan and conduct their own experiments.
Strong links to a real world problem?	Assignments rooted in the community e.g. design a hospital cage for sick birds, create a local trade directory.	Directly relevant to the industry sector locally, so that projects were relevant to the students' work placements.	The programme was to be society-linked, related to the world of work. Experiments were rooted in real life problems.
Teacher as facilitator?	Students had considerable freedom to decide how, when and where they worked.	Strong emphasis on self-regulated learning and independent research before seeking help.	The aim was to stimulate, encourage, and enable learning – not just transmit knowledge.
Higher order thinking skills?	Varied by model of delivery and subject strand but projects could be very challenging.	Students knew where analysis and critique were called for. Reports ended with self-reflection.	Learners enabled to make discoveries and to draw conclusions that showed understanding.
Product presented to a 'real' audience?	Varied, but projects linked to community, employers, would all include 'presentation'.	Workplace assessment guaranteed a real audience of industry professionals.	Products were often very creative, e.g. producing posters, leaflets, for display, dissemination.
Does it cross curriculum boundaries?	Team teaching encouraged cross-curricular projects.	Staff teams facilitated cross-curricular projects, and linking of modules.	Teachers ensured all 3 sciences were taught in a coordinated way.
Is it knowledge engaged?	Wide variation, content of TVEI programmes was not specified.	Knowledge acquired via classes, placements, self-study and projects.	Understanding had to be applied/ tested in familiar and unfamiliar situations.
Are real skills being learned?	Defined in terms of generic experience, and skills that leaners should have. Very strong on IT.	Industry-relevant skills taught in college were practised and assessed in workplace and college.	Rich in opportunities for developing skills that could then be applied to real life situations.

[1] Following the pilot, TVEI was accredited at GCE, CSE, and then GCSE (ending in 1994).
[2] Example from Health and Social Care teacher, BTEC delivery varied by subject and provider.
[3] This was teacher-assessed until 1993, when a 50% cap for teacher assessment was introduced.

6. The 1990s: policy and practice

6.1 Environment and political climate

The post-Thatcher Conservative era (1990-97) included the introduction of Standard Assessment Tasks (SATs) to test the National Curriculum, modification of that curriculum, and the introduction of School Performance Tables. Modification of GCSEs and the launch of the GNVQ were of particular relevance to PBL.

In 1991 the government announced a substantial reduction in the amount of credit to be gained from GCSE coursework and an increase in external control over it. Defended as a necessary response to 'emerging problems such as the varying amounts of help given to pupils by the school and/or other adults as well as difficulties encountered by marking, standardising and moderating' (Hansard, 1991, 533 cc1186-88), there appeared to be a certain lack of transparency. Reports by the Schools Examinations and Assessment Council (SEAC), cited as support for removing coursework, were 'unavailable', amidst claims that strong alternative evidence had been ignored. As the decade progressed, increased central government control (via SEAC) progressively limited the extent to which teachers and schools could deliver and assess a curriculum that they actually wanted to teach (Braund, 2010). Innovative approaches like Suffolk Science were no longer permissible.

The General National Vocational Qualification (GNVQ) was a direct result of a 1991 White Paper on Education and Training (DES,1991). GNVQ was offered at Intermediate and Advanced level, the latter offering a route from college to university as well as employment. TVEI and GNVQ overlapped by several years and Yeomans (1998) identified 3 areas of continuity between them: 1) they were both responses to the weakness of vocational education, 2) they created a practical curriculum, and 3) they promoted progressivism, with a strong emphasis on independence and real world learning. However, by 1995/96, 50% of intermediate level GNVQ students were located in schools (Abbott,1997) where very few staff would have the industry experience that informed vocational teaching in the colleges.

The National Curriculum introduced in 1988 had three core and seven foundation subjects for both primary and secondary schools. It required teachers to deliver discrete subjects giving very little scope for cross curricular or integrated topics or project work. The introduction of SATS in 1991 provoked considerable dissatisfaction; many primary teachers described them as unworkable and there were boycotts of the SATs in 1992 and 1993 (West et al., 1994). School Performance Tables (more commonly referred to as league tables) were introduced in 1992 to summarise the GCSE attainment and progress of pupils in state-funded schools, inevitably skewing the curriculum even further towards 'teaching to the test'.

A Review of 16-19 Qualifications (Dearing, 1996) called for a national framework that made academic, applied and vocational qualifications of equal value, and stressed the importance of work-based routes. It also called for the creation of an Advanced National Diploma around a core of either two A levels or GNVQ. If implemented, these recommendations could have created an environment supportive of PBL, but the government response was to emphasise the existing rigour of A levels whilst rejecting most of the Dearing proposals – a response that 'looked more and more like window dressing for a policy of no change' (Young and Spours, 1998, p91).

In 1997 a Labour government was elected having used 'Education, Education Education' as their flagship campaign. Behind the slogan, the focus was on raising standards and zero tolerance of underperformance; in many ways, the New Labour policies built on those of the previous Conservative government. The 1997 White Paper 'Excellence in Schools' (DfEE, 1997) included the development of a network of Specialist Schools that would allow 'selection by aptitude' (which the government claimed was different from ability) and the creation of Education Action Zones (EAZs), clusters of schools in deprived areas that were to be sponsored by a major

employer, allowed to innovate and to dispense with the National Curriculum. In practice, much of the sponsorship did not materialise, and GCSE results mostly remained static. By the close of the decade, entire local authority education services could be removed if they were deemed to be failing, with private sector companies invited to tender for education services.

6.2 1990s: Initiatives that facilitated a PBL approach

In comparison with the 1980s, 14-19 qualifications were relatively stable. The General National Vocational Qualification (GNVQ), offered at both intermediate (IGNVQ) and advanced (AGNVQ) level was the one new major introduction. The 1990s was a period of significant growth in the number of young people staying in education beyond 16, and the AGNVQ provided an ideal qualification for learners unsuited to the traditional A level curriculum. The most commonly offered pathways by far were those that could be most easily taught in schools and were very popular with students: Art & Design, Business, Health & Social Care, and Leisure & Tourism accounted for the bulk of all enrolments. The remaining subjects (construction, engineering, hospitality and catering, IT, manufacturing, media communication and production, and science) were taught in many colleges but the overall numbers were relatively low.

"When schools began offering GNVQ they just didn't have the industry experience of the colleges. They picked the subjects that didn't require too much in the way of specialist facilities but they could not compensate for the lack of employment experience amongst the teachers." (Teacher)

A GNVQ review group (FEDA, 1997) reported positive features of GNVQ, including its clear progression route from IGNVQ to higher study for those with few GCSEs, though only for the 50% or so who successfully completed their IGNVQ. The variable quality of GNVQ teaching in schools was noted by pupils (see Box 6.2), and Butcher (1998) noted that teacher training did not include preparation for teaching vocational courses, although in colleges this was offset by 'a body of experienced staff who are generally able to commit themselves wholly to the particular demands of vocational courses' (Butcher, p571).

"I have great memories of completing my Media GNVQ. In one project we worked with a company to market a new event and I felt such a sense of pride and achievement when they ended up using our idea and I saw it in 'real life'. However, the GNVQ in ICT felt like a tick box exercise where they told me exactly what I needed to do to pass or improve my grade." (Teacher)

The AGNVQ became increasingly popular with students and in many colleges it displaced the BTEC Diploma, though this turned out to be temporary, as BTEC resurfaced in the following decade (Allen, 2007) after the GNVQ was discontinued.

The closure of TVEI and reduction of coursework in GCSE had removed many PBL opportunities in mainstream schools. The GNVQ, if delivered as intended by teachers who embraced its potential, offered a framework that matched our PBL criteria very closely (Table 4). Aside from the GNVQ, the decade did see some changes within individual subject specifications that could support PBL.

"Geography A level now had assessed projects based on fieldwork. Students had to organise their own hypothesis and data collection in summer holidays. Each student needed individual guidance and distribution of equipment could be a nightmare. Projects were marked by the exam board, an examiner then visited the centre and interviewed each candidate for 30 minutes about their project." (Teacher)

Table 4: Curriculum, qualifications and project-based learning in the 1990s

PBL criteria	GNVQ
Begins with a clear question or goal?	Assessment based model in which syllabus was defined through performance criteria rather than content or mode of delivery. However, project work was a common feature.
Strong links to a real world problem?	Dependent on teacher expertise, availability of community links, employer engagement. At best, strong links with industry and employment supported a real-world focus.
Teacher as facilitator?	Strong emphasis on student independence and on taking responsibility for their own learning, in groups or individually.
Higher order thinking skills?	Independent research skills developed. Higher levels required students to compare and analyse.
Product presented to a 'real' audience?	Varied, depending on school/teacher industry contacts. At best, the local community provided a vocationally-relevant source of reference and guidance.
Does it cross curriculum boundaries?	Core skills including communication, numeracy and IT were mandatory in all subjects regardless of their apparent relevance. Flexibility of syllabus offered potential for cross-curricular work.
Is it knowledge engaged?	Portfolio must demonstrate knowledge acquisition and understanding of basic skills and principles in a vocational area.
Are real skills being learned?	Not intended to develop specific occupational competence but rather to achieve a foundation of skills, knowledge and understanding that would underpin a range of occupations.

6.3 Summary

A focus on structural change increasingly centralised education, diminishing the power of elected authorities and creating opportunities for the private sector to take over schools and administration. The GNVQ, a national initiative, was project-based and popular with students, but in schools was often taught by staff who lacked vocational experience so scope for PBL was not fully realised.

7. The 2000s: the environment and political climate

7.1 Environment and political climate

A central pillar of the New Labour landslide in 1997 was investment in an education system that would work for all young people, and the 2001 Manifesto had promised to harness the individual talents of every pupil. However, as the 2000s progressed, many educators felt that a wave of new developments had not produced the change they had anticipated or desired. On the positive side, a series of government funded, widening participation initiatives (Excellence in Cities, Excellence Challenge, Partnerships 4 Progression, Aimhigher) provided opportunities to explore different styles of learning, many of which were project-based (e.g. School2Uni, see Table 5) including joint ventures with FE and HE institutions. During the decade, the number of vocational qualifications taken by 14-16 year olds rose substantially (15,000 in 2004, 575,000 in 2010) fuelled by their inclusion in the School Performance Tables (DfE, 2011), and claims that vocational 'equivalents' to GCSE were an 'educational con' were aired in the mainstream media (Easom, 2005).

In relation to the potential for PBL, two government reports were particularly significant. The Review of 16-19 Qualifications (Dearing, 1996) had led to Curriculum 2000, which encouraged a combination of academic and vocational study, and more subjects taken post-16. Key changes included the choice of either modular or end-of-course assessment for A levels and the introduction of a new Advanced Subsidiary (AS) qualification representing the first half of the A level course (thereby enabling students to gain a qualification for Year 12). New 'applied' A levels, the Advanced Vocational Certificate in Education (AVCE), replaced the AGNVQ just at the point when that was beginning to become established. Intermediate GNVQs continued but they were not an appropriate preparation for the exam-based assessment of AVCE. Only four years after Curriculum 2000, the Tomlinson Report on 14-19 Curriculum and Qualifications Reform (2004) recommended that GCSEs, A levels and vocational qualifications be replaced with a modular diploma at four levels: entry, foundation, intermediate and advanced. The report was welcomed by schools, and supported by the Chief Inspector, the head of the QCA and many politicians (Sheerman, 2005). However, Tomlinson's proposal for a single qualification was rejected, with GCSE and A levels retained "as the building blocks of any new system" (Hansard, 18 October 2004). An ambitious plan for 14-19 Diplomas would include employer engagement and real world learning, but would be constructed around existing qualifications. (DfES, 2005).

The new qualifications introduced following these two reports were national initiatives that needed considerable financial investment, required significant change or adaptation for teachers, schools and colleges, and had a major impact on students. Curriculum 2000 was met with initial enthusiasm but did not meet expectations. The AVCE was essentially a remodelled AGNVQ, but with unrealistically heavy coursework and assessment requirements (Ofsted, 2004), and it was discontinued after only 4 years. The 14-19 Diplomas did not reflect the Tomlinson recommendations: controversial from the outset, they were discontinued after five years, with the full roll out of subjects incomplete.

By the end of the decade A/AS levels had been revised, with coursework removed in most subjects. Project work could be completed and assessed via the introduction of an additional qualification - the project qualifications which became established in the 2010s (Richmond and Regan, 2023) - but only if a student had the capacity and the school had the resources. For GCSE, the introduction of 'controlled assessment' meant that some project work had in effect been turned into yet another exam.

"At GCSE the introduction of controlled assessment meant that students now had to write the last three sections of the project (Results, Interpretation and Conclusion) under examination conditions in class – a maximum of I think 7 hours to do this. Computers had to have the internet turned off." (Teacher)

7.2 The 2000s: Initiatives that facilitated a PBL approach

Table 5 includes two courses that were national government initiatives (AVCE and 14-19 Diplomas) and one that was a local initiative made possible by widening participation funding.

The AVCE had potential for a high degree of vocational relevance and realism, with continuous assessment directly relevant to the industry. In practice, some centres lacked the resources or expertise to deliver this, students were unhappy with their experience and Ofsted reports expressed concerns (Osted, 2004). Another issue was the lack of an intermediate level qualification, which disrupted the route that had allowed many GNVQ students to gain a level 3 qualification. However, research with teachers and students indicated that the formative assessment of AVCE could facilitate deeper learning (Davies and Ecclestone, 2008).

The 14-19 Diplomas had Foundation, Higher and Advanced levels consisting of three elements: a) Principal Learning, b) Specialist or Additional Learning, and c) Core Learning including functional skills and an Extended Project. School/college/trainer partnerships would be developed to deliver vocational subjects, and there was a strong role for employers, though the government acknowledged that this would depend on 'employers' willingness to get involved' (DfES, 2005, p56).

"*The main issue with the 14-19 Diplomas was how do you make sure that someone can have that amount of placement time and employer input? In a rural area finding the employers and getting the students out to them was never going to work. We need to look at the history of these sort of programmes and learn from it."* (Employer)

Both the Principal Learning and the Extended Project had opportunities for PBL, particularly where there were strong employer links. Specialist learning was intended to offer breadth and depth with sufficient flexibility to create individualised learner programmes. However, complexity of structure, challenging assessments, and the requirement to pass the functional skills in order to be awarded the Diploma, contributed to poor uptake and completion rates (Hodgson and Spours, 2010; Isaacs, 2013).

Alongside the changes to qualification frameworks, the decade supported a wide range of initiatives designed to widen participation in further and higher education, many devised around project work. The School2Uni initiative brought year 9 pupils into a university department every week to produce an industry-standard product or artefact that was presented to staff and parents. A valuable spin-off was that weekly attendance at the university provided an externship for the teachers.

"The purpose of School2Uni was to go beyond Taster Days and provide a genuine learning experience. Their artefacts would be exhibited at the end of the year and they would have to give a presentation. These were year 9 pupils demonstrating year 11 skills and knowledge." (Manager)

Table 3: Curriculum, qualifications and project-based learning in the 1980s

PBL criteria	AVCE	14-19 Diplomas	School2Uni[1]
Begins with a clear question or goal?	Ideally, though could lack realism/relevance, especially if staff lacked industry experience.	Purposeful tasks relevant to industry (e.g. identify safety risks in a workplace).	Year 9 students (14yrs) chose from project titles given by university host departments.
Strong links to a real world problem?	Projects should relate to real issues both local and national, linked with work experience.	Tasks must reflect the world of work and place learners in different contexts.	All topics relevant to current issues, often departmental research interests.
Teacher as facilitator?	Varied, best practice had students working in teams and independently.	Yes, plus targeted feedback from working alongside industry professionals.	Closely supervised due to age but made independent decisions about their project.
Higher order thinking skills?	Required to think critically and apply knowledge to unfamiliar contexts.	Plan-Do-Review approach supported deep understanding and future applications.	Students aware of the need to justify and explain their decisions and actions.
Product presented to a 'real' audience?	Presentations based on research presented to a variety of audiences.	Yes, e,g, completion of a planning application, or a presentation on safety risks in the workplace.	Final exhibition for invited audience with presentations, displays and demonstration.
Does it cross curriculum boundaries?	Yes, in topics relevant to any industry, e.g. health and safety, customer service, finance.	Yes, e.g. linking theatre performance with commercial realities, or engineering with ethics.	Requirement to create and present a product made most projects cross-curricular.
Is it knowledge engaged?	Developed occupationally relevant skills, knowledge and understanding.	Yes, e.g. justifying a design project with secure data and reliable information.	Learners were challenged, knowledge extended their school curriculum.
Are real skills being learned?	Yes, key skills, research skills and industry-specific skills.	Tasks develop personal learning and thinking skills (PLTS).	Some of these skills would be taught to first year undergraduates.

[1] A Partnerships for Progression (P4P) project at Manchester Metropolitan University, 2004-5.

7.3 Summary

A decade of good intentions marred by a strong case of policy amnesia? Significant investment in the AVCE and 14-19 Diplomas failed to produce a vocational curriculum that could compete with A levels. However, financial support for widening participation initiatives demonstrated that schools and universities were not short of practical ideas that could bring projects into the classroom.

8. The 2010s: the environment and political climate

8.1 Environment and political climate

A defining characteristic of the Coalition government elected in 2010 was a programme of austerity that affected every aspect of public expenditure, including education. During the New Labour era spending per pupil had risen each year to a peak in 2010-11 but that was followed by a clear decline from 2012-18 (Bolton, 2021, p5). Austerity affected not only school funding and buildings, but also the financial support available to young people themselves (e.g. cuts to the Education Maintenance Allowance, school meals, bus passes, etc.). Education reforms included a slimmed down National Curriculum for 5–16-year-olds, a comprehensive reform of GCSEs intended to provide a strong foundation for further academic or vocational study, and a reform of A and AS levels intended to provide a better preparation for higher education.

The new 14-19 Diplomas, estimated to have cost around £300mm by the end of 2011 (including £1k to schools and colleges for each diploma student) were already being dropped by awarding bodies, amidst warnings that the impossible expectations of GNVQ were also being made of the diplomas – policy lessons had not been learnt (e.g. Isaacs, 2013).

The revised National Curriculum was to contain the essential knowledge that students should learn in all subjects, but not dictate how teachers should teach. However, Education Secretary Michael Gove wanted to see children "sitting in rows, learning the kings and queens of England, the great works of literature, proper mental arithmetic, algebra by the age of 11, modern foreign languages" (Beadle, 2010), which did not suggest a role for PBL in the classroom. The Academies and Free Schools Act 2010 very rapidly increased the number of schools not required to follow the National Curriculum and 75% of secondary pupils were in such schools by 2019 (DfE, 2019). However, funding mechanisms and performance tables did exert considerable influence over the qualifications that any state-funded school – whether local authority, academy or free school - could offer.

The GCSE reforms specified subject content and assessment, and made end of course exams the default except in subjects where exams could not provide valid assessment of the skills required. A level reforms also specified subject content and replaced the modular element of the previous decade with end of course exams, with other types of assessment used only where needed to test essential skills. It is perhaps worth noting that a heavy reliance on exams encourages a 'teaching to the test' approach in classrooms, with little scope for PBL, and also that the university sector itself was by now utilizing a range of assessment techniques (see BSc Nursing, Table 6). The 14-19 Diplomas were an early casualty of the Coalition government: the first announcement of withdrawal of support came only a month after the 2010 election.

In September 2010, Alison Wolf was asked to review and advise on the provision of vocational education. The Review of Vocational Education (Wolf, 2011) identified that many 'programmes and experiences fail to promote progression into either stable, paid employment or higher level education and training in a consistent or an effective way' (Wolf 2011:21). The government response was to strip most GCSE-equivalent vocational courses from school league tables and to remove thousands of courses offered to 16–18-year-olds. Whilst Wolf's conclusion that many young people were being failed by poor quality courses was widely accepted, the report did not advocate the removal of vocational education, suggesting instead that such qualifications should normally be confined to 20% of a pupil's timetable at Key Stage 4 (Wolf, 2011, p11). However, the removal of so many vocational options would be likely to reduce opportunities for PBL.

The Conservative government elected in 2015 produced a strategy document that promised a world class education to allow every child to reach their potential. It was based on five key principles, the third of which – Outcomes not Methods – promised to empower education professionals to achieve good results through innovative local solutions (DfE, 2016). However, given that 2015 saw the first roll out of the reformed exam-based GCSEs and A levels, moves away from didactic forms of syllabus delivery might well have been seen as a risky strategy. In any case, the stress of simultaneously introducing a new curriculum at Key Stages 4 and 5 had placed schools and colleges under such pressure that teachers were more likely to be focused on survival than innovation.

8.2 The 2010s: Initiatives that facilitated a PBL approach.

Examples of PBL initiatives related to government policy or practice are hard to find during this decade, though the Project Qualification has its origins in the Tomlinson Review. Initially a compulsory part of the 14-19 Diplomas, it has survived as a stand-alone qualification offered at three levels: Foundation, Higher and Extended, in schools that have the resources to deliver it. If delivered as intended it meets all of our PBL criteria (see Table 6), though some centres are criticised for over-guidance and too much supervisor influence (AQA, 2022).

"Unless you do them, I don't think you can appreciate just how much work assessed projects are to set up, manage and mark. The workload on staff is unappreciated, and pressure on students with the "write ups" can be demotivating for them. Any fieldwork needs to be planned a year in advance, and even the risk assessments can take hours." (Teacher)

Evidence that schools and teachers continued to practise and champion PBL in the classroom for its own merits rather than purely to achieve a qualification can be found, particularly in the University Technical Colleges (UTCs). The vocational emphasis of these schools encourages and enables PBL, with employer engagement as an integral part of the curriculum (Rogers and McGrath, 2023)

Looking beyond the 14-19 curriculum, it is worth noting that the university sector has increasingly moved away from exam-based assessment to encompass a wide range of delivery styles and modes of assessment in many subjects. Unlike schools and colleges, universities have control over the content of the curriculum and the mode of assessment. PBL approaches are particularly evident in vocational courses such as Nursing Studies: it is perhaps no coincidence that more students enter the nurse degree training programme with a BTEC than with A levels (NHS Employers, 2022).

"The assignments we're given all deal with current issues and they're a pretty close match to the experience we get on the wards, so I've been able to talk with professionals about the difficulties they can encounter in delivering best practice in a real world scenario." (Student)

8.3 Summary

The age of austerity impacted on school budgets and family finances, reducing educational opportunities for many young people. A curriculum focussed on traditional academic subjects assessed by exams further restricted choice. Widening participation funding ended and PBL initiatives were rapidly closed, though schools continued to champion PBL if resources permitted.

Table 6: Curriculum, qualifications and project-based learning in the 2010s

PBL criteria	Project Qualifications (Foundation, Higher and Extended).	Employer projects in University Technical Colleges[1]	BSc Nursing degree (Yr1 project)
Begins with a clear question or goal?	Yes, the student chooses an area of interest, and drafts the title and aims for the project.	Begins with a fundamental question, e.g. How to measure and understand its importance.	Precise question drawn from the assessment criteria for the achievement of professional standards.
Strong links to a real world problem?	Potentially. Student can choose to explore a personal interest outside or beyond the curriculum.	Real world settings with scenarios and challenges set by business 'make sense' of the curriculum.	The project outline exactly matches a real world scenario drawn from lived experience.
Teacher as facilitator?	Teacher supervises, though may teach some necessary skills, especially at levels 1 or 2.	Teacher supervises, employers launch the project, mentor teams, and judge the outcomes.	Tutorial support is available but the project and report is to be conducted independently.
Higher order thinking skills?	Yes, it develops creative, reflective, inquisitive independent learners. Problem solving and decision making required.	Encourages independent thinking, ability to question, how to progress a project and work within budgets and timelines.	Requires full understanding of a complex process and correct application of knowledge.
Product presented to a 'real' audience?	Yes, presentation to a non-specialist audience is part of the assessment.	Employers specify the outcomes and then return to assess the product.	All assessment conducted by professionals, often current practitioners.
Does it cross curriculum boundaries?	Would depend on the choice of topic but there is certainly scope for this.	Projects combine academic pathways, vocational technical skills and enrichment activities.	Requires integration of medical, psychological and social issues and impact on the patients' families.
Is it knowledge engaged?	Requires autonomous work by the student, and a research-based written report.	Student must apply knowledge to a challenging topic in a relevant industrial context.	Requires constant engagement with current state of knowledge to ensure best practice.
Are real skills being learned?	Acquisition of relevant transferable and core skills must be shown in each project.	Develops high quality, locally relevant and current skills to support future progression.	Assessment includes direct observation of any practical skills specified, alongside a written report.

[1] Drawing on McCrone et al. 2019.

9. How, when and why does PBL happen?

9.1 A model for PBL – is it all about policy?

This paper has shown that education policy has a strong influence on the presence or absence of PBL in the classroom. Overall, it seems that PBL is best encouraged by an environment in which qualifications, funding, teaching styles and modes of assessment are aligned with each other and support its delivery, in other words that there is consistency from the macro- to the micro-environment in which PBL would operate. Using an ecosystems approach (Bronfenbrenner, 1979, 2005) this can be described at four levels. At a macro-level, national policy and organisations control qualifications, assessment, performance tables, funding, partnership arrangements, training and development. At an exo-level, schools operate within frameworks determined by local authorities or multi-academy trusts (MATs). At a meso-level, schools will have some control over the curriculum and their use of resources and facilities. At a micro-level, individual teachers may have scope to adapt their delivery depending on their personal expertise or preferences. Consistency across the four ecosystems provides a stable environment in which PBL can thrive (e.g. a PBL classroom in a MAT that embraced PBL and chose qualifications that assessed it, would offer continuity to the learner).

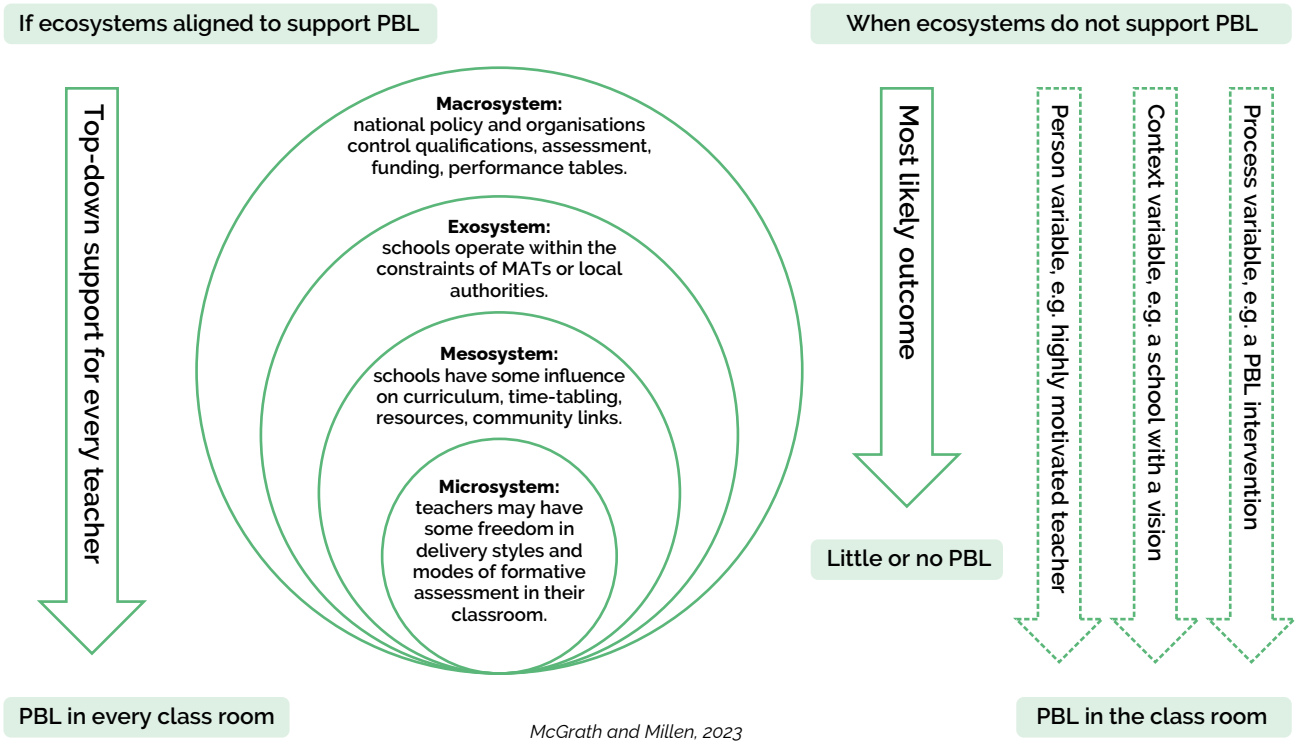
"There has to be 'space' in the curriculum to enable practitioners to have the time to create meaningful projects which are embedded in the curriculum. When I talk to teachers now there is 1/3 more content so they are 'ploughing' students through content and they don't have the time and space to develop skills and understanding as the emphasis on Knowledge has been overwhelming." (Manager)

Over the five decades considered in this paper it is evident that this close alignment across these ecosystems is hard to achieve. For example, the push towards comprehensive schools (macro-level) offered potential for innovation but many schools and teachers (meso/micro-levels) persisted with a 'grammar school' curriculum and delivery nevertheless. Conversely, the current exam-based GCSEs do not sit comfortably alongside PBL, but some schools (e.g. UTCs) do manage to embed PBL into their curriculum. Can a model based on Bronfenbrenner explain this, and can understanding it show us how to support PBL?

Whilst Bronfenbrenner's work is best known for his ecosystem theory, in explaining individual development he also emphasised the role of *Person*, *Process* and *Context*. Drawing on these three concepts can offer a way to model the factors that can explain the presence or absence of PBL in the classroom, but also suggest ways of encouraging PBL despite inopportune circumstances. For example, *Personal* agency may result in PBL because a passionate teacher brings expertise to the classroom; a curriculum initiative may introduce an educational *Process* in which PBL can thrive; a headteacher may have a vision that creates an environmental *Context* for PBL to flourish.

Figure 1 shows how the different elements of Bronfenbrenner's approach come together to offer a framework for understanding what can bring PBL into the classroom, whether the environmental is supportive or hostile.

Figure 1: Applying Bronfenbrenner's Ecosystems approach to the delivery of PBL



McGrath and Millen, 2023

Any one of *Person, Process or Context* could potentially create a learning environment that delivers through projects even if the four ecosystems are not aligned, though in reality the opportunities are limited. A passionate teacher can only bring expertise to their classroom if they have personal experience or training that enables them to deliver PBL, which first requires investment of time and money. In practice, successful PBL in the absence of supportive national policy may often be the result of an effective blend of the three concepts. For instance, two strong examples of PBL in the northeast of England that were supported by the Edge Foundation (Rogers and McGrath, 2023) showed how institutional vision (Process) combined with staff passion and commitment (Person) were operationalised by an external PBL initiative – Ford NGL *(Context)*. However, whilst such examples can show what is possible, they are operating below the level of the macro-system and therefore do not have the capacity for national transformation.

In the absence of a PBL-aligned national policy, a model based on Bronfenbrenner can show that whilst change is most likely to occur when top-down, it could also be bottom-up, driven by pressure from the micro or mesosystems. *Person*, *Context* and *Process* variables have the potential to create sufficient PBL in the classroom to generate or support *grass roots activism* that can be effective in pushing for policy change, whether at the level of parents in individual schools or at the ballot box. Current examples might include Rethinking Assessment (a growing movement making the argument for assessment to be fairer, broader and more equitable) and Protect Student Choice (a campaign for the retention of Applied General Qualifications, which offer a range of delivery and assessment modes, including PBL). Clearly, this is not simply 'all about policy'.

9.2 What keeps PBL out of the classroom?

This paper has shown how decades of policy makers have introduced change intended to transform education, often motivated by an intention to produce learners who are equipped for the world of work. Given that this is still an aim, rather than an achievement, it would appear that a series of costly qualification initiatives have failed. Perhaps this is because a new broom can only sweep the floor – if the problem is that the floorboards are creaking, little has been achieved. This paper's overview of five decades suggests there are some prevailing attitudes or approaches that need re-examination:

1. The assumption that exams are the only rigorous form of assessment, and that academic qualifications are superior to vocational ones.
2. Repeated attempts to engage employers in qualification design, delivery or assessment when England does not have a mechanism to enable this, relying instead on voluntary participation.
3. The introduction of qualifications or initiatives that require local partnerships and collaborations without the resources or structure needed to build such relationships.
4. Provision of financial incentives to pilot new qualifications that cannot be sustained after rollout, necessitating cheaper forms of delivery and/or assessment.
5. A lack of preparation for the teaching of vocational education during initial or in-service teacher training programmes.

These are major issues. Is there a way forward? Education policy in England is often highly 'political' and therefore subject to frequent change in our two-party system. In the past 50 years there have been 28 Education Secretaries, which may partly explain an element of policy amnesia that has sometimes resulted in costly new qualifications having many of the imperfections of the old ones they are replacing. As this paper has shown, qualifications have sometimes had such a short lifespan that there has been insufficient time for a full roll out, let alone for any positive impact to be realised. Could it be that only decoupling education from party politics has the power to transform this situation? In a recent Blogpost for BERA (British Educational Research Association), former Education Secretary Charles Clarke wrote that the failure to implement the Tomlinson report was the biggest mistake of the Labour governments of 1997-2010, but that fully implementing such a scheme would require a long term political consensus that is hard to imagine (Clarke, 2023).

The comment boxes in this paper show how PBL, when and where it flourishes, can offer positive alternatives to an 'academic' approach to curriculum. In many schools, extracurricular activities can also provide excellent opportunities for PBL and a breadth of assessment techniques that show what a young person has achieved, but these are not available to all young people. Sustained work experience or placements can do the same, but again the opportunities are limited and not universally accessible. The introduction to this report described two popular extracurricular awards (DofE and Young Enterprise) that teach and evaluate project skills, drawing on real life experiences. These are high profile international schemes but, whilst researching this paper, the point has been made to us on several occasions that life itself is a project. Could we do more to harness and accredit real life opportunities alongside the current exam-based school curriculum?

"Most people have to apply some project skills if they are going to do something - day to day life, work, events in the community or family life. Someone has a birthday, or you go on holiday – these things are not called projects but they meet the criteria. In school, the art is to get the project disciplines practised while a piece of work is taking place, structuring the work to get not only the academic result but the wider result." (Manager)

The short-lived Record of Achievement potentially offered this, and digital learner profiles might do this in the future (e.g. Rethinking Assessment, 2023).

In the meantime, what can society do to support the hundreds of thousands of young people trapped in an exam-based education system in which many are destined to 'fail'? Currently there is considerable pressure for change in our schools, with educational, vocational and professional organisations calling for a new approach to curriculum and assessment. Can these voices become loud enough to be heard by those with the power to make change happen?

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